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COMPLETE SPECIFICATION

FOR A STANDARD PATENT

ORIGINAL

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Invention Title:	JACKPOT GAME SYSTEM

Details of Associated Provisional Application No. PR4456 dated 18 April 2001

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

ABSTRACT

The gaming machines of the preferred embodiments allow the gamers to participate in two games. A jackpot controller (1) includes a central processor unit or CPU (8). CPU 8 has eight phone network cable connector ports (20a to 20h) for connection of the gaming machines (3). Each connector ports (20a to 20h) accommodate up to 16 parallel connected gaming machines providing a total of 128 gaming machines associated with the second game. Each gaming machine (3) is associated with an interface card (2) that provides the communication interface between the gaming machine (3) and controller (1).

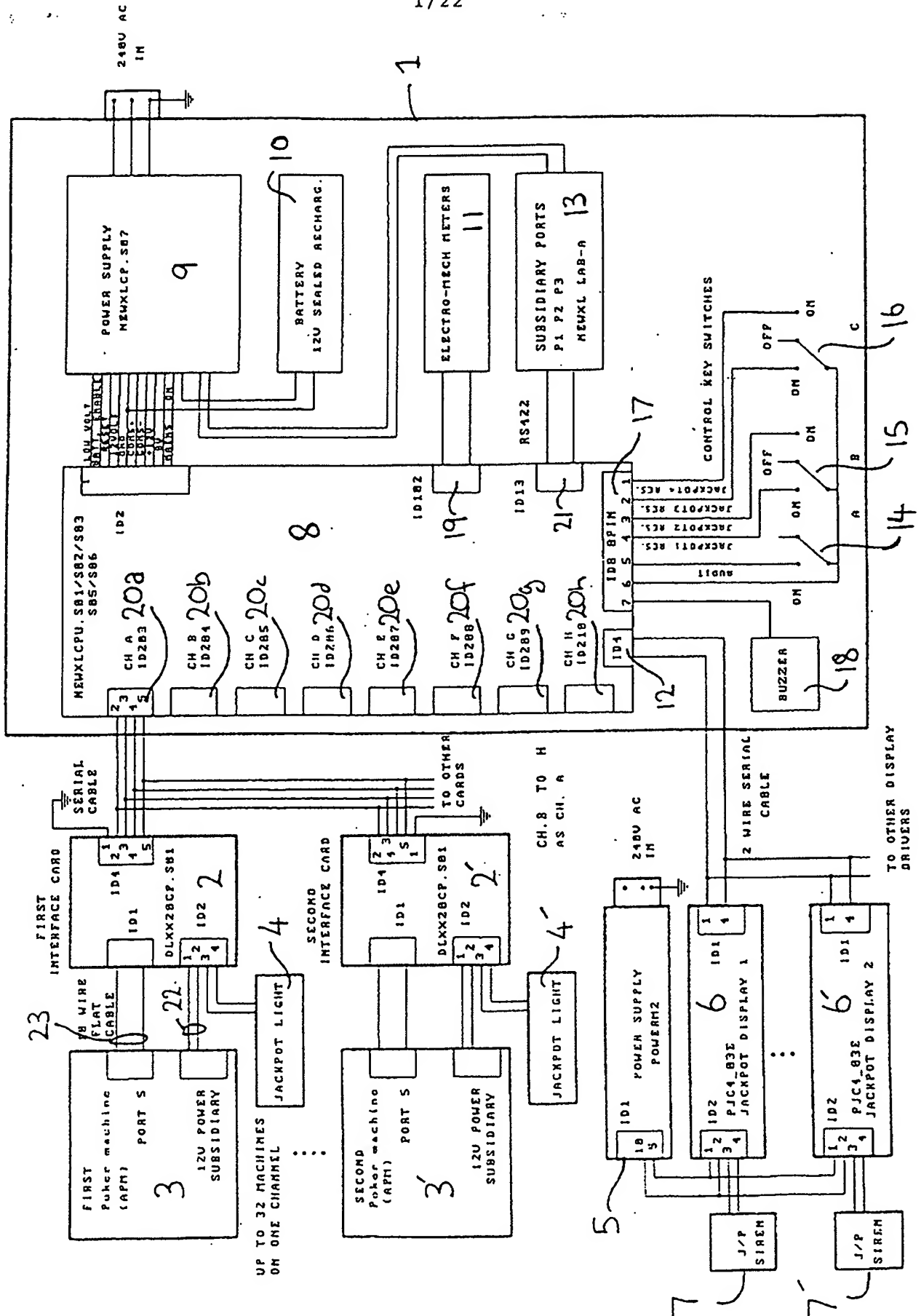


FIGURE 1

FIELD OF THE INVENTION

The invention relates to gaming and in particular to a jackpot game system and method.

The invention has been developed for use with a plurality of gaming machines that
5 are interlinked over a gaming network and will be described hereinafter with reference to that application. However, the invention is not limited to that particular field of use and is also suitable for use with a single machine that includes a jackpot game.

BACKGROUND TO THE INVENTION

The following background is intended to provide the addressee with context in
10 relation to the known prior art and it is not to be taken as an admission of the state of the common general knowledge in the art of the invention.

Jackpot games associated with linked gaming machines, such as slot machines, poker machines, keno machines and the like are known. It is also known to link a plurality of the gaming machines to provide a central jackpot game. As players play individual
15 gaming machines a, typically monetary, value is added to a jackpot prize pool. The jackpot prize pool has a published lower and upper limit and the jackpot is awarded when the jackpot prize pool reaches a secret win value randomly determined between the upper and lower limits.

The jackpot game has displays positioned at locations within view of the players
20 of the gaming machines. The displays indicate the current level of the jackpot prize pool. Players can watch this value increase as games are played, however apart from knowing the published upper limit they do not know when the jackpot will be struck.

When the jackpot is struck the displays are reset to the published lower limit. A problem that arises is that once the displays reset, the players are less interested in playing
25 machines linked to a jackpot game with a low prize pool value. That is, the machines can become relatively less popular within a gaming venue.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a gaming method and system which ameliorates this disadvantage with prior art games, or at least which provides the
30 public with a useful alternative.

According to a first aspect the invention provides for a jackpot game method including:

determining, or selecting a previously determined, lower jackpot value;
determining, or selecting a previously determined, upper jackpot value;
randomly determining a jackpot win value between the lower jackpot value and
the upper jackpot value;

5 randomly determining a threshold value between the jackpot win value and the
upper jackpot value; and

communicating the threshold value to a player of a gaming machine.

Preferably, the method includes updating a variable jackpot value in response to a
play of a gaming machine, wherein a jackpot game is won when the variable jackpot
10 value is at or above the jackpot win value.

Preferably, and as required in some jurisdictions, the jackpot win value is
determined at the beginning of the jackpot game and remains fixed for the duration of the
game. In other embodiments the method includes, either continuously or periodically
during the jackpot game, randomly determining a new threshold value between the jackpot
15 win value and the upper jackpot value, and communicating the new threshold value to each
player of the gaming machine.

Preferably, the method includes communicating the threshold value to a plurality of
gaming machines that collectively define a gaming network. More preferably, plays on all
of the gaming machines in the network contribute to the accumulation of the jackpot.

20 Preferably the threshold value, or new threshold value, does not affect the chance
of winning the jackpot game. More preferably, the lower jackpot value and upper
jackpot value are determined before the jackpot game commences.

According to a second aspect the invention provides for a jackpot game system
including:

25 a jackpot controller for communicating with one or more the gaming machines;
at least one jackpot display in communication with the jackpot controller and
viewable by a player of the or each the gaming machine; and wherein the jackpot
controller:

determines, or has a previously determined, the lower jackpot value;
30 determines, or has a previously determined, the upper jackpot value;
randomly determines the jackpot win value between the lower jackpot value and
the upper jackpot value;
randomly determines the threshold value between the jackpot win value and the

upper jackpot value; and

causes the threshold value to be displayed on at least one the jackpot display.

Preferably the jackpot controller is responsive to game plays on the or each gaming machine to update a variable jackpot value, the jackpot controller determining
5 that a jackpot game has been won when the variable jackpot value is at or above the jackpot win value.

Preferably the jackpot win value is determined at the beginning of the jackpot game and remains fixed for the duration of the game. More preferably, the threshold value is determined at the beginning of the jackpot game and remains fixed for the duration of the
10 game. In other embodiments the jackpot controller, either continuously or periodically during the jackpot game, randomly determines a new threshold value between the jackpot win value and the upper jackpot value, displaying a new threshold value on at least one jackpot display.

Preferably the threshold value, or new threshold value, does not affect the chance
15 of winning the jackpot game. More preferably, the lower jackpot value and upper jackpot value are determined before the jackpot game commences. Even more preferably, the jackpot controller is operable for one jackpot game or two or more simultaneous jackpot games, each jackpot game having its own lower jackpot value, upper jackpot value, jackpot win value and threshold value, there being at least one jackpot display for each jackpot
20 game.

According to a third aspect the invention provides for a computer readable medium including instructions to a jackpot controller to:

determine, or read a previously determined, lower jackpot value;
determine, or read a previously determined, upper jackpot value;
25 randomly determine a jackpot win value between the lower jackpot value and the upper jackpot value;
randomly determine a threshold value between the jackpot win value and the upper jackpot value; and

cause the threshold value to be communicated to a players of the gaming machine.
30 Preferably, the medium includes instructions to the jackpot controller to be responsive to input from one or more gaming machines, the response including updating a variable jackpot value in response to plays on the gaming machines, and determining that a

jackpot game has been won when the variable jackpot value is at or exceeds the jackpot win value.

Preferably, the medium includes instructions to the jackpot controller to, either continuously or periodically during the jackpot game, randomly determining a new
5 threshold value between the jackpot win value and the upper jackpot value, and cause the new threshold value to be communicated to players of gaming machines.

Preferably, the threshold value, or new threshold value, does not affect the chance of winning the jackpot game. More preferably, the medium may include a previously determined lower jackpot value and a previously determined upper jackpot value that are
10 readable by the jackpot controller.

Preferably, the medium includes instructions to the jackpot controller to be operable for one jackpot game or two or more simultaneous jackpot games, each jackpot game having its own lower jackpot value, upper jackpot value, jackpot win value and threshold value.

15 Preferably also, the computer readable medium is one or more of RAM, EPROM, EEPROM or other non-volatile memory devices.

According to a fourth aspect the invention provides a gaming machine for use in a gaming network that allows a gamer to participate in a first game of chance associated with the machine and a second game of chance associated with the network, the second
20 game including a jackpot prize that progressively increases from a lower value toward an upper value and which is awarded when the prize reaches a randomly predetermined jackpot win value that lies between the upper and lower value, the machine including:

- an input device for allowing the gamer to provide an input signal to actuate the machine;
- 25 a local controller being responsive to the input signal for initiating the first game of chance and for communicating with a network controller to both initiate the second game of chance and to obtain a threshold value that falls between the lower value and the first jackpot win value;
- a local display being responsive to the local controller for allowing the gamer to
30 view the first game of chance and the threshold value.

Preferably, the local controller also obtains from the network controller the upper value and the local display allows the gamer to view the upper value. More preferably, the machine includes a housing for supporting the input device, the local controller and

the local display. Even more preferably, the local display includes a first display for allowing the gamer to view the first game of chance and a second display, spaced apart from the first display, for allowing the gamer to view the threshold value.

5 Preferably also, the network controller includes a network display that allows the gamer to view the upper value. More preferably, the network display is prominently positioned in a line of sight from the machine. In some embodiments, the local controller obtains the upper value from the network controller and the local display includes the network display.

10 In a preferred form, the local display is a single display device that incorporates two or more of the first display, the second display and the network display. In other embodiments, the second display is an LED screen mounted to the housing.

15 Preferably, the network controller obtains a second threshold value that falls between the jackpot win value and the upper jackpot value and the local controller allows the gamer to view the second threshold value. More preferably, the second threshold value is randomly determined.

20 Preferably, the network controller is responsive to the jackpot being awarded for providing an audible and/or visual indication of the machine that triggered the award. That is, the gamer operating the machine that has triggered the award of the jackpot is provided with an immediate sensory indication that this has occurred. More preferably, the indication is provided by one or more of: a siren, one or more flashing lights; a display that is prominent in the establishment in which the gaming machine is contained; a visual message that is provided on the local display.

According to a fifth aspect the invention provides for a jackpot game method including:

25 determining, or selecting a previously determined, lower jackpot value;
determining, or selecting a previously determined, upper jackpot value;
randomly determining a jackpot win value between the lower jackpot value and the upper jackpot value;
randomly determining a threshold value between the jackpot win value and the
30 lower jackpot value; and
communicating the threshold value to a player of a gaming machine.

Preferably, the method includes updating a variable jackpot value in response to plays of the gaming machine, a jackpot game being won when the variable jackpot value is at or above the jackpot win value.

5 Preferably the jackpot win value is determined at the beginning of the jackpot game and remains fixed for the entire game. More preferably, the method includes, either continuously or periodically during the jackpot game, randomly determining a new threshold value between the jackpot win value and the lower jackpot value, and communicating the new second jackpot value to players of gaming machines. More preferably, the threshold value, or new second jackpot value, does not affect the chance
10 of winning the jackpot game.

Preferably, the lower jackpot value and upper jackpot value are determined before the jackpot game commences.

According to a sixth aspect the invention provides for a jackpot game system including:

15 a jackpot controller for communicating with one or more gaming machines; at least one jackpot display in communication with the jackpot controller and viewable by players of the or each of the gaming machines; and wherein the jackpot controller:
determines, or has a previously determined, lower jackpot value;
20 determines, or has a previously determined, upper jackpot value;
randomly determines a jackpot win value between the lower jackpot value and the upper jackpot value;
randomly determines a threshold value between the jackpot win value and the lower jackpot value; and
25 causes the threshold value to be displayed on the at least one jackpot display.

Preferably the jackpot controller is responsive to game plays on the gaming machines to update a variable jackpot value, the jackpot controller determining that a jackpot game has been won when the variable jackpot value is at or above the jackpot win value.

30 Preferably, the jackpot win value is determined at the beginning of the jackpot game and remains fixed for the entire game. Preferably also, the jackpot win value is determined at the beginning of the jackpot game and remains fixed for the duration of the game. Even more preferably, the jackpot controller, either continuously or periodically during the jackpot

game, randomly determines a new threshold value between the jackpot win value and the lower jackpot value, and causes the new threshold value to be displayed on the at least one jackpot display. More preferably, the threshold value, or new threshold value, does not affect the chance of winning the jackpot game. Even more preferably, the lower jackpot value and
5 upper jackpot value are determined before the jackpot game commences.

In a preferred form, the jackpot controller is operable for one jackpot game or for two or more simultaneous jackpot games, each jackpot game having its own lower jackpot value, upper jackpot value, jackpot win value and threshold value, there being at least one jackpot display for each jackpot game.

10 According to a seventh aspect the invention provides for a computer readable medium including instructions to a jackpot controller to:

determine, or read a previously determined, lower jackpot value,
determine, or read a previously determined, upper jackpot value,
randomly determine a jackpot win value between the lower jackpot value and the
15 upper jackpot value,
randomly determine a threshold value between the jackpot win value and the lower jackpot value, and
cause the threshold value to be communicated to a player of a gaming machine.

Preferably, the medium includes instructions to the jackpot controller to be
20 responsive to input from one or more gaming machines, said response including updating a variable jackpot value in response to plays on the gaming machines, and determining that a jackpot game has been won when the variable jackpot value is at or exceeds the jackpot win value.

Preferably the medium includes instructions to the jackpot controller to, either
25 continuously or periodically during the jackpot game, randomly determine a new threshold value between the jackpot win value and the upper jackpot value, and cause the new threshold value to be communicated to the one or more players of the gaming machines. More preferably, the threshold value, or new threshold value, does not affect the chance of winning the jackpot game.

30 Preferably, the medium includes a previously determined lower jackpot value and a previously determined upper jackpot value that can be read by the jackpot controller. More preferably, the medium includes instructions to the jackpot controller to be operable for one

jackpot game or for two or more simultaneous jackpot games, each jackpot game having its own lower jackpot value, upper jackpot value, jackpot win value and threshold value.

Preferably, the computer readable medium is one or more of RAM, EPROM, EEPROM or other non-volatile memory devices.

5 According to an eighth aspect the invention provides a gaming machine for use in a gaming network that allows a gamer to participate in a first game of chance associated with the machine and a second game of chance associated with the network, the second game including a jackpot prize that progressively increases from a lower value toward an upper value and which is awarded when the prize reaches a randomly predetermined jackpot win
10 value that lies between the upper and lower value, the machine including:

an input device for allowing the gamer to provide an input signal to actuate the machine;

a local controller being responsive to the input signal for initiating the first game of chance and for communicating with a network controller to both initiate the
15 second game of chance and to obtain a threshold value that falls between the upper value and the jackpot win value;

a local display being responsive to the local controller for allowing the gamer to view the first game of chance and the threshold value.

Preferably, the local controller also obtains from the network controller the upper
20 value and the local display allows the gamer to view the upper value. More preferably, the machine includes a housing for supporting the input device, the local controller and the local display. Even more preferably, the local display includes a first display for allowing the gamer to view the first game of chance and a second display, spaced apart from the first display, for allowing the gamer to view the threshold value.

25 Preferably also, the network controller includes a network display that allows the gamer to view the upper value. More preferably, the network display is prominently positioned in a line of sight from the machine. In some embodiments, the local controller obtains the upper value from the network controller and the local display includes the network display.

30 In a preferred form, the local display is a single display device that incorporates two or more of the first display, the second display and the network display. In other embodiments, the second display is an LED screen mounted to the housing.

Preferably, the network controller obtains a second threshold value that falls between the jackpot win value and the lower jackpot value and the local controller allows the gamer to view the second threshold value. More preferably, the second threshold value is randomly determined.

- 5 Preferably, the network controller is responsive the jackpot being awarded for providing an audible and/or visual indication of the machine that triggered the award. That is, the gamer operating the machine that has triggered the award of the jackpot is provided with an immediate sensory indication that this has occurred. More preferably, the indication is provided by one or more of: a siren, one or more flashing lights; a display that
- 10 is prominent in the establishment in which the gaming machine is contained; a visual message that is provided on the local display.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described, by way of example only, with reference to the accompanying drawings in which:

- 15 Figure 1: is a schematic overview of a jackpot gaming system according to the invention and which includes two or more networked gaming machines,
- Figures 2 to 6: illustrate detail of a central processing unit for a jackpot game controller,
- 20 Figure 7: illustrates the layout of power supply circuits for the jackpot controller,
- Figure 8: illustrates the layout of a subsidiary port module for the jackpot game controller,
- Figure 9: illustrates control switch positions for the jackpot game controller,
- 25 Figure 10: illustrates a first packet protocol for data communications within the jackpot gaming system,
- Figure 11: illustrates byte information for display configuration within the jackpot gaming system,
- Figure 12: illustrates a second packet protocol for data communications within
- 30 Figure 13: illustrates a third packet protocol for data communications within the jackpot gaming system,

- Figure 14: illustrates a fourth packet protocol for data communications within the jackpot gaming system,
- Figure 15: illustrates a fifth packet protocol for data communications within the jackpot gaming system,
- 5 Figure 16: illustrates an electrical layout for non-volatile display meters within the jackpot gaming system,
- Figure 17: illustrates a detailed layout of a gaming machine network interface card, and
- Figures 18 to 22: illustrate flow diagrams of software algorithms for the jackpot gaming system.
- 10

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the accompanying drawings like reference numerals represent like reference numerals.

Figure 1 illustrates a schematic overview of a gaming system in which players
15 participate in a first game of chance on two or more networked gaming machines 3 and a second game of chance associated with the network. In this embodiment machines 3 are poker machines and the second game of chance is the jackpot game associated with the interconnected poker machines. In other embodiments machines 3 are keno machines, slot machines or other known gaming machines.

20 The jackpot controller 1 includes a central processor unit (CPU) 8, details of which are shown in Figures 2 to 6. CPU 8 has eight phone network cable connector ports 20a to 20h for connection of the gaming machines 3. Each connector ports 20a to 20h accommodate up to 16 parallel connected gaming machines providing a total of 128 gaming machines associated with the second game. Each gaming machine 3 is associated
25 with an interface card 2 that provides the communication interface between the gaming machine 3 and controller 1.

Also associated with each interface card 2 is a jackpot light 4 that is illuminated to indicate which gaming machine 3 has won a jackpot prize.

CPU 8 also has a display communications port 12 to which a plurality of jackpot
30 displays 6 are connected in parallel. Each jackpot displays 6 is associated with a local jackpot siren 7 that sounds when a jackpot has been won. An external power supply 5 provides power to the jackpot displays 6. In the preferred embodiment jackpot displays 6 are disposed at prominent locations in line of sight of game machines 3 so that players

can readily view displayed jackpot information. In an alternative embodiment a jackpot displays 6 is associated with each gaming machine 3 so that each player has jackpot information within his local field of view.

Also associated with each interface card 2 is a jackpot light 4 that is illuminated
5 to indicate which gaming machine 3 has won a jackpot prize.

The jackpot controller 1 has three key-operated switches 14, 15 and 16 for providing operator input to CPU 8. The key switches 14, 15 and 16 are connected to CPU 8 at six pins of a seven pin socket 17. The seventh pin of socket 17 connects to a buzzer 18 that provides alarm and feedback signals to the operator.

10 Jackpot controller 1 also includes a group of electromechanical meters 11 connected to a port 19 on CPU 8. The electromechanical meters 11 provide a non-volatile record of audit information.

A subsidiary ports card 13 is provided to facilitate the connection of ancillary equipment to the jackpot controller 1. Details of the subsidiary ports card 13 are shown
15 in Figure 8. The subsidiary ports card 13 is connected to a socket 21 on CPU 8.

A power supply module 9 and 12-volt rechargeable backup battery 10 are provided to support the power requirements of the jackpot controller 1. Figure 7 shows detail of the power supply circuits. The battery 10 is charged by a constant voltage circuit while mains supply is available. When mains supply fails the battery supplies the jackpot controller 1
20 for a period while the CPU 8 conducts a shut down. Part of the shut down procedure involves writing audit information to the CPU 8 EEPROM.

Jackpot controller 1 is at the heart of the second game of chance. As players on gaming machines 3 participate in the first game they contribute to the prize pool of the jackpot game. The jackpot controller 1 is enabled for up to four simultaneous jackpot
25 games. Each game has a different jackpot level and is enabled to be of one of two types: a standard game or an enhanced game.

The standard game involves a secret random monetary prize, called a jackpot which occurs between published upper and lower limits. The CPU 8 randomly determines a jackpot win value between the upper and lower limits. This value is not revealed while the
30 prize pool is being contributed. As games are played on each gaming machine 3 a percentage of the gaming machine 3 turnover is contributed to the prize pool. When the prize pool reaches the randomly selected win value the jackpot is won. The gaming

machine 3 that contributed the win amount to the prize pool is awarded the jackpot. After the jackpot has been won the prize pool is reset to the published lower limit.

The enhanced random game is that provided by this preferred embodiment of the invention. The win value is randomly selected in the same manner as the standard game.

- 5 However a second random value is selected and caused to be displayed on the jackpot displays 6, revealing it to the players while the prize pool is being contributed. In the preferred embodiment of the enhanced random game the second random number is generated to fall between the randomly selected win value and the published upper limit. When revealed to the players it is indicated that the jackpot must be won "under this limit".
- 10 This seemingly reveals narrower odds of winning the jackpot, but does not affect the payout percentage or turnover statistics, which are the same as for the standard random game.

- In a second embodiment of the enhanced random game the second random number is generated to fall between the published lower limit and the randomly generated win value and caused to be displayed to the players on the jackpot displays 6. This reveals a
- 15 higher initial jackpot value to the players, encouraging them to participate in the new game.

For the standard random game the average jackpot win amount is calculated by using the following formula:

$$\text{average win} = (\text{maximum} - \text{start up})/2 + \text{start up}$$

The probability of a jackpot hit on the next increment is:

20 $1 \text{ in } P = (\text{maximum} - \text{current}) \times 100.$

For the preferred embodiment of the enhanced random game the average jackpot win amount is calculated using the following formula:

$$\text{average win} = (\text{maximum} - \text{start up})/2 + \text{start up}$$

The average reveal amount is equal to the following formula:

25 $\text{average reveal} = (\text{maximum} - \text{average win})/2 + \text{average win}.$

The probability of a jackpot hit on the next increment is:

$$1 \text{ in } P = (\text{reveal} - \text{current}) \times 100.$$

The following section of the description relates specifically to particular aspects of the gaming system.

- 30 Figure 9 identifies the position combinations for key-operated switch a 14, switch b 15, and switch c 16. These provide input control to CPU 8. The switch positions are referred to in the following discussion on configuration and setup of the gaming system.

The CPU 8 memory contains a database of all gaming machines 3 connected to the network. The interface card 2 associated with each gaming machine 3 is provided with a system identification number (SID) in the range 1 to 128. The gaming machine database will be set up on power up of the jackpot controller 1 if there are no security or error events and key switches 14, 15 and 16 are set to AUDIT, BACKWARD and SELECT as indicated in Figure 9. During setup the CPU 8 scans each of the eight channels 20a to 20h for interface cards 2. Interface cards 2 are identified by their SID. When the CPU 8 identifies an interface card 2 it will not scan for that same SID number on another channel. If the gaming machine 3 corresponding to an interface card 2 does not exist in the database it is added, or if the gaming machine 3 is set for deletion then it is removed from the database. To delete a gaming machine 3 from the database a delete jumper is enabled on its interface card 2. This allows removal from the database even if the matching gaming machine 3 is not available. This may only be done from setup mode. To replace a gaming machine 3 using the same SID number, setup mode must be first run to delete the old gaming machine 3 from the database and then run again with the new gaming machine 3 connected.

Many system events in the gaming system are time-stamped and the key-operated switches 14, 15 and 16 allow time setup. To enable time setup key switches 14, 15 and 16 are set to AUDIT, OFF and CLOCK respectively during power up of jackpot controller 1. Security and error events must be absent. Displays 6 will show a time setup message. Key switch 14 is moved to the OFF position and key switch 15 is used to increment and decrement the value in the current time field. Key switch 16 is used to move between time fields.

The CPU 8 communicates with jackpot displays 6 using a constant current loop network operating at 4800 baud with no parity and one stop bit. Data transfer is one way. The sixteen-byte packet structure for display communication is shown in Figure 10.

In a preferred embodiment the jackpot displays 6 are 96 x 16 pixel LED dot-matrix displays on which two lines of information can be displayed.

Figure 11 provides a table of formatting types and corresponding data formatting bytes for jackpot display 6. The formatting byte only changes how data is presented on the displays 6. The value of the data is not modified by the display driver. The control byte identifies the actual display 6 on which the data is to be displayed. There are five different display 6 types, one for each of the four jackpot game levels and one for display of audit information. The jackpot signal bit-one indicates a jackpot event that directs the

display driver to activate the associated jackpot siren 7. The check sum bytes are an addition of all bytes from 1 to 14 inclusive. Should either check sum byte generate the packet termination character it is masked out to avoid a packet error.

Interface cards 2 provide a serial communications interface between gaming machines 3 and jackpot controller 1. The communications network is 19200 baud one start bit, eight data bits, even parity and one stop bit for every byte (11 bytes in total). The jackpot controller 1 polls each interface card 2 in turn requesting information. The interface card 2 is identified by its SID. The interface card 2 receives information from the gaming machine 3 and passes this to jackpot controller 1. Interface cards 2 have volatile data storage. There is no battery memory backup. If there is no response from a polled interface card 2 the jackpot controller 1 will try three times before declaring the gaming machine 3 associated with that interface card 2 inactive.

The packet format used to poll the interface cards 2 is shown in Figure 12. The packet has 11 bytes. A check sum is generated by addition of bytes 2 and 8. If STX(FF) or ETX(FE) characters are generated that byte is ANDED with FD so these characters do not appear within the packet. The "command request" byte identifies that the interface card 2 should respond with one of two different types of data packet or that the interface card 2 carry out a specific action.

The first of the two different types of data packet identified in the "command request" byte is a long response packet. The packet structure for a long response packet is shown in Figure 13. The long response packet has 131 bytes with the check sum generated by addition of bytes 2 and 128. If STX(FF) or ETX(FE) characters are generated that byte is ANDED with FD so these characters do not appear within the packet.

The second of the two different types of data packet identified in the "command request" byte is a short response packet. The format for a short response packet is shown in Figure 14. The short response packet has 19 bytes with the check sum generated by addition of bytes 2 and 16. If the STX(FF) or ETX(FE) characters are generated that byte is ADDED with FD so these characters do not appear within a packet. The short response data packet is used for updating the turnover information of a gaming machine 3. The long response packet is requested only on power up or if a reset has taken place. The long response packet is not used for regular responses because of the high bandwidth when servicing the database.

If an interface card 2 is unable to supply data from its corresponding gaming machine 3, or there is no new data, it responds with a no data packet. The format for a no data packet is shown in Figure 15. The no data packet is also used to confirm that a specific task requested by the jackpot controller 1 has been carried out by the interface card 2. For example if the jackpot controller 1 polls a specific interface card 2 with a request to activate its associated jackpot light 4 the interface card 2 will respond with the no data packet to confirm that it has activated jackpot light 4.

The CPU 8 contains RAM, EPROM and EEPROM non-volatile memory. RAM is backed up by a 3 volt NiMH battery. Upon normal power down a check sum is calculated of all battery backed RAM and recalculated on power up to ensure no data has been lost or modified.

A 128K RAM memory is used to store all information associated with gaming machines 3. Each gaming machine 3 is allocated 256 bytes of database (described earlier) storage space. A 32K byte EPROM is used to store all executable program, and jackpot limit information. A 4K byte EEPROM is used as backup storage for audit metres. Should the non-volatile memory fail the EEPROM memory will recover this. Should the system fall into memory error the EEPROM provides a reliable source of system recovery.

The jackpot controller 1 is equipped with a group of nine electromechanical meters 11. Figure 16 illustrates the electrical schematic of the nine electromechanical meters 11. These meters are used to store the total turnover contributed to the prize pool. The total amount of the jackpot resets for each prize pool and total amount won for each of the prize pools. If service is required then all nine meters are replaced as one unit together. The meters 11 contain a security signal loop to the CPU 8 which can detect when the meters 11 are disconnected. The CPU 8 will not attempt to increment the meters 11 while they are disconnected. CPU 8 will record the information and when the meters 11 are reconnected the CPU 8 will update them.

The interface cards 2 used to connect gaming machines 3 to the jackpot controller 1 are a volatile storage buffer for gaming machine data. The main purpose of the interface card 2 is to transfer standard data packets from the gaming machine 3 to the jackpot controller 1. Detail of the interface card 2 layout is shown in Figure 17. The interface card 2 has its own processor with embedded operating software. There are two electrical connections 22 and 23 between the gaming machine 3 and interface card 2. The first connection 22 is a 12-volt 100 milliamp power supply from the gaming machine 3 to the

interface card 2. The second connection 23 is an RS422 connection for the transfer of the standard data packets. The interface card 2 also has a connection to a local jackpot light 4 for indicating that the particular gaming machine 3 has won the jackpot prize.

5 The interface card 2 receives 128 byte standard data packets from the gaming machine 3 for transfer to the jackpot controller 1. The interface card 2 supplies the jackpot controller 1 with data packets from the jackpot controller according to the previously mentioned communications protocol. The transfer rate between the gaming machine 3 and interface card 2 is 9600 baud eight data bits, even parity and one stop bit. Data packets are passed between the gaming machine 3 and interface card 2 continuously. If the interface
10 card 2 does not receive a data packet within 200 milliseconds it will reject the next packet. If the interface card 2 does not receive a data packet within 60 seconds it will issue a "suspend play" signal to the gaming machine 3. The "suspend play" signal will be withdrawn when the interface card 2 receives a valid data packet.

The interface card 2 also performs a self-audit on data packet information
15 according to the formula:

$$\text{Credit} = \text{cash in} + \text{money in} + \text{win} - \text{money out} - \text{cancel credits} - \text{turnover}.$$

If the audit check does not balance the packet is discarded and the jackpot controller 1 informed of the audit error. Play is suspended on that particular gaming
20 machine 3.

The following discussion concerns aspects of the software routines used in the preferred embodiment of the invention. In the following discussion gaming machines are referred to as Approved Poker Machines (APMs) otherwise known as approved gaming machines. Where a single gaming machine is used, this is referred to as a Stand Alone
25 Gaming Device or SAGD.

The jackpot controller software is divided into nine major sections. These are:

Power Up	<p>This sections deals with all power up related functions.</p> <p>The power up section makes sure that the system integrity is good before the system proceeds with normal functions.</p> <p>This includes making sure that</p> <ul style="list-style-type: none">• memory is not corrupt.• performing self-audit test.• checking for any setup requests
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	<ul style="list-style-type: none"> • or if the system was previously in lockup, recovery from the lockup state.
Power Down	<p>This sections deals with the loss of system mains power.</p> <p>After mains power is removed the system is kept in ON by an internal battery for a short time. This allows housekeeping to be performed.</p>
Communications	<p>This section controls the flow of information to and from the interfaces.</p>
Random Number Generation	<p>Evenly distributed pseudo random numbers are constantly generated and discarded in the background while the system is running.</p>
Jackpot Processing	<p>The jackpot processing section deals with the incrementation and awarding of jackpots to contributing APMs. Four levels of jackpots are available.</p>
Message Updating	<p>This section is responsible for updating current system messages to represent the status of the link.</p>
Subsidiary Data Block Updating	<p>Upon certain system events, subsidiary data blocks are output to the subsidiary ports. Three types of subsidiary blocks are output; PDB1, PDB2, CDB.</p>
Security Checking	<p>This section deals with checking the security cage status of the link. Should the cage be open, all connected APMs are put offline.</p>
Mechanical Meter Updating	<p>The mechanical meters section is responsible for the incrementation of the mechanical meters and the detection of the mechanical meters being disconnected.</p>

The following is a description of each of the main routines and sub-routines. Flow diagrams for the jackpot controller routines are shown in Figures 18 to 22.

- Power up Routines : *system_init*

The jackpot controller 1 powers up at 'system_init' and initialises all CPU 8 ports and system registers. A check for a cold reset is performed. If requested cold reset is conducted all link meters are cleared.

The next check is a request for memory error recovery only possible if memory error is present. As part of recovery the jackpot controller 1 will read backup meters from battery backed RAM. If battery backed RAM does not check

properly then the backup meters will be read from the EEPROM. Next, the system pointers and display messages get initialised.

On power up, the memory must match the checksum that was calculated on the previous power down. If the test does not pass then the system locks up in to memory error.

The next two checks are for the setup of the APM database or the system clock. The setup will only proceed if selected by a shunt ON pins 1,2 ID5 for the APM database setup. If the shunt ON pins 1,2 ID5 is not in place then the key switch position will be checked for clock setup request. There must be no current system lockups for the setups to occur.

The system performs a self audit test and locks up if it fails into memory error.

- Main Program Loop : *loop_main*

The main loop sequentially calls the subroutine/functions to distribute CPU 8 processing. The functions contained in the main loop are, 'congruential_update', 'mimic', 'secmain', 'metmain', 'update_time', 'security check', 'check_inactive_apms' and 'jp_exec'.

- Random Number Routines : *congruential_update*

The random number generator continuously generates random numbers, one for each of the four game levels. Each random number calculated is stored into its respective location separate for each game level. After all four random numbers have been calculated, the congruential generator will calculate four new ones and so on. Each jackpot game level processing routines will read its own random number and store it away for itself "on the fly" when required. The 'congruential_update' function is totally independent of the jackpot game processing routines. Random numbers are calculated then discarded continuously. A second random number is calculated between the random number just calculated for the game level and the upper jackpot limit for the particular game. This number is called the double random feature number and is continuously calculated immediately after each random number is calculated for the same game. There are four double random numbers which are calculated in conjunction with the random number for the game level. Random number generation is described later.

- Display Output : *mimic*

The mimic function serially outputs audit and four jackpots to the display channel. The audit and jackpot information will only be output if the respective level is enabled. If not then the message located at 'clud_id' is output as a default message.

- Key Switch Processing : *point*

5 The 'point' function monitors the key switches and jump to the selected routine in the jump table representative of the key switch combination. The functions in the 'jump_table' are mainly jackpot resets and audit displaying functions.

- Subsidiary Equipment Communications : *secmain*

10 The function 'secmain' determines whether or not one of the three data blocks are required to be output. The three data blocks that the function gathers information for output are PDB1, PDB2 and CDB blocks. The function monitors system events and status bits to determine output of a particular block. Should two or more blocks required to be output at the same time then the PDB1 has the highest priority followed by PDB2 then CDBs

- 15 • Mechanical Meter Processing : *metmain*

The 'metmain' routine controls the functions of the nine mechanical meters 11. The five mechanical meters, Turnover and Jackpot Won one through four are incremented one pulse representing ten dollars of change in that meter. The Jackpot Resets one through four meters are incremented every time the jackpot is reset.

20 The 'metmain' routine also monitors the status of the mechanical meter disconnect line which is connected to the mechanical meter panel. If the meters are disconnected then a message is shown on the display and the progressive data blocks are output every 1.5 seconds.

- Update System Time : *update_time*

25 The system time meter that is used for the audit display and time stamping is updated from the internal clock from a battery backed timekeeper RAM.

- Monitoring Security Event : *security_check*

When the security cage is opened the jackpot controller 1 suspends all the connected APMs and disables games one through four. While the cage is open the buzzer 18
30 sounds/tics and will only turn off when cage is closed. The jackpot controller 1 will still latch the event even when the cage is closed. To reset the security error the cage must be closed and the key switches 14, 15 and 16 placed in respective positions: Audit, Forward, and Select respectively.

When the security event is reset the system performs a self audit test. If the test does not pass the system locks up and is placed in memory error. When the system passes the self audit test the random numbers for each game are recalculated from between the upper and lower limit and the current value. The four games are now enabled and are able to function normally.

- Monitoring APM Messages : *check_inactive_apms*

- **Communication Failure** - This function checks all Interface cards 2 for communication failure and reports the error if any on the audit display.

- **APM Power Down** - This function checks all APMs for power down or power good status and reports the error on the audit display. The Interface card is sent a "play suspend" command on this condition.

- **Configuration Change** - This function checks all APMs for any that have changed. An APM is placed in "play suspend" if its configuration has changed. Recovery can only be done by replacing the APM with the original configuration or run setup mode for the jackpot controller 1.

- Jackpot and Turnover Processing : *jp_exec*

Jackpot processing routines are called once every pass of the main loop of the program. From "*loop_main*" the program executes "*jp_exec*". The program pointer "*jp_exec_point*" stores the next function call inside "*jp_exec*". The "*jp_exec*" function does not proceed with any turnover processing while a setup condition is in effect.

The first function call is to "*jp_exec_get_data*". This function will only proceed if the "*security_stat*" bit register contains no indication of memory error. This function checks for APM contribution information on the queue via the "*get_queue*" function. The information contained on the queue is net turnover contributed by an APM. The queue is of the first in first out type (FIFO). If no information is available from the queue the "*jp_exec_get_data*" function is stored into "*jp_exec_point*" for the next pass.

If data is retrieved from the queue the function "*place_to_meters*" is called to update the turnover meters. The meter "*turn_last_conf*" updates the individual APM turnover. The meter "*met_turnover*" updates the mechanical meters. The meters "*pdb2_tot_since*", "*pdb2_tot_turn*" and "*total_turn_since*" are updated and are turnover totals for the link. The turnover taken from the queue is

converted from BCD to hex by the function "convert_net_diff_hex" for processing on the next pass of "jp_exec".

5 The system messages disabled in the "audit_fault" register are power up, cage closed, memory reset and subs on and off messages. The PDB1 status byte 1 "sec_sb1" bits power up and reset bits are removed. The next function "jpexec_lev1" which processes the level one game jackpot is placed into the routine pointer "jp_exec_point" for the next pass. The "jp_exec" function is now finished for this pass.

10 The subsequent calls of "jp_exec" execute "jpexec_lev1" function, "jpexec_lev2" function, "jpexec_lev3" function, and "jpexec_lev4" function only if data was taken off the queue by "jp_exec_get_data" function. The function "jpexec_lev4" setups up the routine pointer "jp_exec_point" to call "jp_exec_get_data" on the next pass of "jp_exec" call from "loop_main". The backup meters are written "write_backup_meters" at the point "jp_exec_lev4_end" if the total turnover is has increased by \$100. The description is provided for level 15 one game as the functions jpexec_lev are identical coding and only deal with their particular level.

The function "jpexec_lev1" calls one of the following routines "ll_process_next_data_que", "ll_process_next_data_que_hidd", 20 "inc_overflow1", "ll_latch_random_number" or "ll_latch_random_number_hidd". The function called depends on the bits in the "jpot1_stat" register.

A new game will call the "ll_latch_random_number" function. This retrieves a random number from the random number generator and stores it at 25 "rand_num_save1" for comparing with "pdb1_current1" during the current game. Bit 2 is cleared so the next function called from "jpexec_lev1" is "ll_process_next_data_que".

30 The dollar amount is enabled on the display via bit 0 in the "level1_msg" bit register. If enabled in the "message_status" bit register the "Jackpot must hit under xxxxxx" message is enabled via bits 1 & 2 in the "level1_msg" bit register. The hit under amount is either the jackpot 1 limit or a second random number. The second random number feature is described later.

5 The function "*ll_process_next_data_que*" applies the percentage "*incr_perc1*" to the net turnover taken from the queue. If the increment amount is greater than 1 cent the display is incremented by the amount calculated. This is done in the function "*inc_display1_met*". The "*pdb1_ccurrent1*" is compared with the random number. If no jackpot is hit then the function exits.

10 If the jackpot hits then the jackpot is awarded to the APM which caused the hit. A new random number is latched for the next game which is the HIDDEN game. Any increment which is greater than the random prize which has just been won by the winning contribution is added to "*pdb2_accr_hidd1*" the HIDDEN game. The winning APM's identity is stored in "*jpot1_mch_base*" and "*jpot1_page*". The "*levell_msg*" bit register which enables or disables messages on the level one game display is changed to show the jackpot win message. The "*jpot1_stat*" has bit 0 set so the next function called from "*jpexec_lev1*" is "*ll_process_next_data_que_hidd*". The status byte 1 jackpot bit is enabled for PDB1 via the "*sec_sb1*". The progressive data blocks 1 and 2 are set for output with the "*sec_status*" register. The jackpot is displayed on the audit display via the "*audit_fault+4*" bit register. The play suspend bit for level one game in the winning APM's "*sef_stat*" register is set. The "*ocf1_comms*" interrupt will see the bit set and send a play suspend packet to that particular APM.

20 The function "*inc_display1_met*" applies the percentage "*incr_perc1*" to the net turnover taken from the queue. If the increment amount is greater than 1 cent the display is incremented by the amount calculated. This takes into account parts of a cent calculated from previous turnover calculations. Parts of a cent are stored at "*percent_calcl*". This function also checks if there are any overflow amounts in "*overflow1*". If there is money in the overflow, 1 cent is decremented from the overflow and added to HIDDEN game every time turnover is processed for the CURRENT game.

25 The function "*ll_process_next_data_que_hidd*" applies the percentage "*incr_perc1*" to the net turnover taken from the queue. If the increment amount is greater than 1 cent the HIDDEN game is incremented by the amount calculated. This is done in the function "*inc_hidden1_met*". The "*pdb1_accr_hidd1*" is compared with the random number. If no jackpot is hit then the function exits.

30

If the jackpot hits then the jackpot is awarded to the APM which caused the hit. No new random number is latched. Any increment which is greater than the random prize which has just been won by the winning contribution is added to "overflow1" the overflow meter. The winning APMs identity is stored in
5 "jpot1h_mch_base" and "jpot1h_page". The "jpot1_stat" has bit 1 set so the next function called from "jpexec_lev1" is "inc_overflow1". The progressive data blocks 1 and 2 are set for output with the "sec_status" register. The play suspend bit for level 1 in the winning APMs "sef_stat" register is set. The "ocfl_comms" interrupt will see the bit set and send a play suspend packet the that particular APM.

10 The function "inc_overflow1" applies the percentage "incr_perc1" to the net turnover taken from the queue. If the increment amount is greater that 1 cent the overflow meter "overflow1" is incremented by the amount calculated.

The first checks performed in "jp_exec" are for power down condition and security cage open events. If either of these conditions are present then the
15 "jpot1_stat" is temporarily modified so the "inc_overflow1" function is executed. Although during these conditions all APMs are in play suspend some turnover may be left on the queue from before the events occurred. So as to not cause a jackpot hit the overflow meter is incremented instead of the CURRENT or HIDDEN meters.

The jackpot reset functions are called from "point" and are not called
20 from "jp_exec".

The "key_switch1" function resets jackpots for level one game and is called from "point" in the main loop. This function will only reset the jackpot if there are no security status error condition present in the "security_stat" register. The key switch which triggers this function must be held down for at least three
25 seconds before the jackpot is allowed to be reset. The timer is held at "switch_fiddle_tim".

Once a valid request is detected to reset the jackpot "transfj1" function is called. This function enables the history directory with the "auditstatus" bit 6. The current value is added to the mechanical meters via the "met_wonjp1" meter.
30 The following meters are updated "pdb2_tot_won1", "total_won1_since_b", "pdb2_no_res1" and "no_res1_since_b". The history is updated with the level of the jackpot, the SID of the winning APM, the amount of the jackpot and the time the jackpot was won. The APM is removed from play suspend condition by

clearing the "*sef_star*" bit for level 1. The "*audit_fault+5*" message bit register enables the message "J/Pot1 has now been reset". The HIDDEN game is moved to the CURRENT game and the HIDDEN game is reloaded with the random minimum value "*rand_min1*". If there is not HIDDEN jackpot the jackpot win messages are removed and the "*jpot1_stat*" bit 0 is cleared which executes
5 "*ll_process_next_data_que*" on the next call of "*jpexec_lev1*". If a HIDDEN jackpot is present then "*jpot1_stat*" bit 1 is cleared and bit 2 is set which executes "*ll_latch_random_number_hidd*" on the next call of "*jpexec_lev1*". The HIDDEN winning APM details are transferred to the display as the HIDDEN
10 now becomes the CURRENT jackpot.

- Count Sequencer : *rel_tim_int*

Counts the timing for mechanical meter increments which is used by 'metmain' function.

Counts the mains AC signal which is used by the 'ocf5_power' interrupt.

- Jackpot Controller Network : *ocf1_comms*

15 Controls all aspects of communications for all Interface cards 2 connected to the Network that reside in the database. There are two sections of the 'ocf1_comms' interrupt. The first, when the jackpot controller 1 is placed in setup mode and data base is being made. The second, when the jackpot controller 1 contains a database of all machines and is ready to accept turnover.

- 20 • Subsidiary Output : *sec_comms*

This interrupt outputs a data block to the subsidiary ports 13 requested by the 'secmain' function. The time to output the whole data block is approximately 190 milliseconds. Once the data block is output the interrupt waits approximately 200milliseconds before accepting a data block from the 'secmain' function.

- 25 • Audit Messages : *ocf4_disp*

The audit display has its own message table consisting of 48 messages. The enabled messages are copied to the level output buffer which is output to the displays by the 'mimic' routine. When the end of the message table is reached the start of the message table begins a new scan of messages to be output.

- 30 • Power Monitoring : *ocf5_power*

This interrupt monitor the low voltage indicator(LVI) line and the mains on signal line to determine the power state of the system. When the mains on signal line reads that the mains has been removed, the system starts the power down process.

If there are no system errors then the non-volatile memory is written with critical meters. A check sum is calculated on all battery backed memory. The system then disables the RAM from being written into then turns off the battery and a system reset soon follows. The jackpot controller 1 is now powered down.

5 • Level Messages : *ocf6_feat*

Each of the four game levels has its own message table. The enabled messages are copied to the level output buffer which is output to the displays by the 'mimic' routine. When the end of the message table is reached the start of the message table is begins a new scan of messages to be output. Each level has eight messages in its table.

10

• System Time Setup : *setup_system_time*

The system setup time interrupt is enabled on two conditions. During a cold reset the system time is required to be setup so the interrupt is enabled. During normal power up when the key switches 14, 15 and 16 are placed in the following position:

15

- Audit, OFF, Clock

After the interrupt is enabled the display shows 'Set Day'. To increment and decrement the day use the following key switch combinations.

- OFF, OFF->Forward->OFF, OFF - Increment
- OFF, OFF->Backward->OFF, OFF - Decrement

20

To increment to the next field which is the 'SET MONTH' use the following key switch combinations:

- OFF, OFF, OFF->Select->OFF

The fields will scroll through 'Set Day', 'Set Month', 'Set Year', 'Set Hour', 'Set Minute' and 'Completed?'. When 'Completed?' is displayed use the forward or backward keys to accept the new changes.

25

The operating software for the microprocessor of the interface card 2 is embedded on an onboard EPROM. The software is divided into three main sections. The main routines and subroutines are described below.

Rxpoker	This section receives information from the APM.
Rxtxlink	This section receives a poll from the Jackpot controller transmits back information received from the APM.
Main	This section initialises the Jackpot controller on power up and distributes the processing between the rxpoker and rxtxlink sections.

- Initialisation : *Reset*

The *Reset* initialises all input and output ports of the processor. The RAM space between 0800H to 0BFFH is cleared. The communications buffers and registers are initialised and the EEPROM signature is calculated. All enabled interrupts
5 are then unmasked. Program control is then passed over to the main loop.

- Main Program Loop : *Main*

The main loop distributes processing between jackpot controller 1 communications and APM communications. The main loop monitors the state of the power good line 22 from the APM. The main loop monitors the "*SystemSEF*" register and
10 enables or disables the Play Suspend condition to the APM accordingly. Monitors the jackpot condition status "*SystemJP*" for jackpot events and activates jackpot light 4 accordingly.

- Communication time out checks : *TimeOutCheck* , *TimeOutInterrupt*

The communications from the jackpot controller 1 and APM each have a timeout counter which cause an APM play suspend if timed out. When successful
15 communication packet is received, the respective timeout timer is refreshed.

- SDB Receive : *APMRx*

This routine receives 128 characters synchronised with a start of transmission character (FF). The entire packet is valid if each character received is without a
20 bit error, contains a matching checksum and passes a self-audit test. The packet is then temporarily stored for transmission to the jackpot controller 1 for processing. There are three buffers used to store incoming packets from the APM. While the standard data packets (SDB) is being received, the APM Rx Buffer is used. When the reception is complete, the SDB is transferred to the
25 Temp Buffer. If the interface card is not transmitting data to the jackpot controller, the SDB in the Temp Buffer is transferred to the Link Tx Buffer.

- Interface card Receives Jackpot controller Packet : *RxLPacket*

This routine receives polls from the jackpot controller and determines whether the poll is intended for it. This is done by matching an address carried with the
30 packet with the SID that the interface card is setup with. The packet is discarded if the address does not match. The packet must contain the exact number of bytes and a matching checksum for the packet to be accepted.

- Build Packet to Jackpot controller : *TxLNewPkt*

5 This routine acts upon a valid packet received from the jackpot controller. Each packet received from the jackpot controller contains a command code. This command code informs the interface card to carry out a specific task or respond to the jackpot controller with certain type of information. A new packet is built for transmission based on the command code received information from the SDB is attached to the packet. The interface card sends its signature checksum with every packet to the jackpot controller.

- Send Packet to Jackpot controller : *TxLPacket*

10 This routine transmits a built packet of information to the Jackpot controller. The routine has the task of enabling the charge pump to allow transmission from the data line. Once the TX line is enabled, the packet is output to the jackpot controller.

- Interface card signature checksum calculation : *SigInit*

15 Every time the interface card powers up a checksum is calculated of the contents of the EEPROM where the program data is stored. This checksum value is stored in the RAM and is transmitted with every packet to the jackpot controller. The jackpot controller is responsible to accept or reject the packet send to it based on this checksum value. When the power is removed from the interface card this checksum value is lost until the next power up where it is recalculated again.

20 The operating software for the display driver microprocessor of the Displays 6 is embedded in an onboard EEPROM. The software is divided into three main sections. The main routines and subroutines are described below.

Main	This sections deals with all power up, initialisation and integrity related functions.
Link Communications	This sections take the data from the link controller and stores it in the system memory.
Output Data	This section takes the link information received and outputs this information to the LED Matrix display.

- System Initialisation : *SystemInit*

25 This routine initialises up all required input and output ports, loads interrupts with default values, clears all RAM locations and conducts a dot test on the LED matrix display. Runs "*NetworkInit*" to initialise the receive communications from the jackpot controller. Runs "*LIBinit*" to initialise the standard graphics

routines. The final item of system initialisation is to check for user setup request to determine which level the display will be showing.

- Setup Request: *checksetup, ProgramSetup*

The routine "*checksetup*" is used to program the display driver for the first time.

5 This routine copies run time program into an EEPROM for execution during normal program operation. When the display powers up a checksum is calculated on the contents of the EEPROM and match with a predetermined value stored in an EPROM.

10 The routine "*ProgramSetup*" stores information about which game level the display is programmed to output. The user selectable options are stored into the EEPROM. Every subsequent power up the display retrieves the programmed information stored in the EEPROM and displays the particular game level selected by the user.

- Receiving Display Information : *Network*

15 This routine receives all display packet information from the jackpot controller and stores it in the separate buffers for each level. This routine is an interrupt routine that is called when a byte is received from the communication channel. A packet is only considered valid when the checksum stored within the packet matches the value calculated when is bytes were received. These correct number
20 of bytes plus a terminating character of 0Dh.

- Output display information to LED matrix : *Decode, SetupData, OutData, StrobeData*

25 The "*Decode*" routine takes information that is to be placed on the display and decodes it into bit information for the output routines. The "*SetupData*", "*OutData*" and "*StrobeData*" routine output this bit information to the LED matrix display.

- Display Data Formatting : *LIBformat*

30 This function takes information received from the jackpot controller and applies formatting to the data that is specified with a command code that is supplied with the packet. The values of the information are not altered. The most common commands that are used are removal of leading zeros of a number, removal of white space and inserting dollar signs and decimal points.

- Main Program Loop : *Main3x2*

The main program loop places the information received from the communication channel to the display. Added is different colour schemes selected by the user.

The Random Number Generator uses the following formula:

$$X_{n+1} = (a X_n + c) \bmod m$$

5 where

a =	7^5	$X_n =$	$2^{24} - 3$
c =	1	m =	$2^{31} - 1$

The Random Number Generator is called from the main program loop and runs constantly in the background calculating numbers. Random Numbers that can be used by the jackpot processing routines are retrieved from 'rnd_sync_j1', 'rnd_sync_j2', 'rnd_sync_j3' and 'rnd_sync_j4'. The feature numbers are retrieved from 'rnd_sync_f1',
10 'rnd_sync_f2', 'rnd_sync_f3' and 'rnd_sync_f4'. The numbers are latched from these locations at the beginning of a new progressive game and are stored in 'rand_num1_save', 'rand_num2_save', 'rand_num3_save', 'rand_num4_save', 'rand_num_f1_save', 'rand_num_f2_save', 'rand_num_f3_save' and 'rand_num_f4_save' for the duration of a game.

15 In the preferred embodiment there is a new gaming system and jackpot game method. In other embodiments existing gaming systems are reprogrammed to operate according to the new gaming method. EPROMs or EEPROMs are written with new software for existing jackpot controllers, interface cards and/or display drivers. The EPROMs or EEPROMs are shipped for retrofitting of existing gaming systems.

20 In some embodiments of the invention the network controller, upon determining the gaming machine that triggered the jackpot win, provides an immediate win signal to that machine. The win signal includes not only data indicative of the win being awarded, but also the quantum of that win. Once this signal is received by the local controller, it drives the display to alert the gamer to the award of the jackpot as well as increasing the
25 gaming credits in accordance with the quantum of the win. This avoids the need for a separate payment being made and therefore the need to handle cash unnecessarily.

Where, in the preceding description, reference has been made to particular elements or integers having known equivalents, such equivalents are included as if individually described. Moreover, while a particular example of the invention has been
30 described, it is envisaged that improvements and/or modifications can take place without departing from the scope of the invention.

It will be appreciated by those skilled in the art that the invention may be embodied in many other forms. For example, the invention is, in some embodiments, implemented on a single gaming machine that provides two separate games of chance, one of which is a jackpot game.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A jackpot game method including:
 - determining, or selecting a previously determined, lower jackpot value;
 - determining, or selecting a previously determined, upper jackpot value;
 - 5 randomly determining a jackpot win value between the lower jackpot value and the upper jackpot value;
 - randomly determining a threshold value between the jackpot win value and the upper jackpot value; and
 - communicating the threshold value to a player of a gaming machine.
- 10 2. A method according to claim 1 wherein the jackpot value is updated in response to a play of a gaming machine, wherein a jackpot game is won when the variable jackpot value is at or above the jackpot win value.
3. A method according to claim 1 or claim 2 wherein the jackpot win value is determined at the beginning of the jackpot game and remains fixed for the duration of the
- 15 game.
4. A method according to any one of the preceding claims wherein the method includes, either continuously or periodically during the jackpot game, randomly determining a new threshold value between the jackpot win value and the upper jackpot value, and communicating the new threshold value to each player of the gaming machine.
- 20 5. A method according to any one of the preceding claims wherein the method includes communicating the threshold value to a plurality of gaming machines that collectively define a gaming network.
6. A method according to claim 1 or claim 2 wherein the plays on all of the gaming machines in the network contribute to the accumulation of the jackpot.
- 25 7. A method according to any one of claims 1 to 5 wherein the threshold value, or the new threshold value, does not affect the chance of winning the jackpot game.
8. A method according to any one of the claims 1 to 4 wherein the lower jackpot value and the upper jackpot value are determined before the jackpot game commences.
9. A jackpot game system including:
 - 30 a jackpot controller for communicating with one or more said gaming machines;
 - at least one jackpot display in communication with the jackpot controller and viewable by a player of the or each said gaming machine; and wherein the jackpot controller:

determines, or has a previously determined, the lower jackpot value;
determines, or has a previously determined, the upper jackpot value;
randomly determines the jackpot win value between the lower jackpot value and
the upper jackpot value;

5 randomly determines the threshold value between the jackpot win value and the
upper jackpot value; and

causes the threshold value to be displayed on at least one said jackpot display.

10. A system according to claim 9 wherein the jackpot controller is responsive to the
game plays on the gaming machine to update the variable jackpot value, the jackpot
10 controller determining that the jackpot game has been won when the variable jackpot
value is at or above the jackpot win value.

11. A system according to claim 9 or claim 10 wherein the jackpot win value is
determined at the beginning of the jackpot game and remains fixed for the duration of the
game.

15 12. A system according to any one of claims 9 to 11 wherein the threshold value is
determined at the beginning of the jackpot game and remains fixed for the duration of the
game.

13. A system according to claim 9 or claim 10 wherein the jackpot controller, either
continuously or periodically during the jackpot game, randomly determines a new
20 threshold value between the jackpot win value and the upper jackpot value, displaying a
new threshold value on at least one jackpot display.

14. A system according to any one of claims 9 to 13 wherein the threshold value, or
new threshold value, does not affect the chance of winning the jackpot game.

15. A system according to any one of claims 9 to 13 wherein the lower jackpot value
25 and upper jackpot value are determined before the jackpot game commences.

16. A system according to any one of claims 9 to 13 wherein the jackpot controller is
operable for one jackpot game or two or more simultaneous jackpot games, each jackpot
game having its own lower jackpot value, upper jackpot value, jackpot win value and
threshold value, there being at least one jackpot display for each jackpot game.

30 17. A computer readable medium including instructions to a jackpot controller to:
determine, or read a previously determined, lower jackpot value;
determine, or read a previously determined, upper jackpot value;

randomly determine a jackpot win value between the lower jackpot value and the upper jackpot value;

randomly determine a threshold value between the jackpot win value and the upper jackpot value; and

5 cause the threshold value to be communicated to a players of the gaming machine.

18. A medium according to claim 17 wherein instructions to a jackpot controller are to be responsive to input from one or more gaming machines;

the response including updating a variable jackpot value in response to plays on the gaming machines, and determining that a jackpot game has been won when the variable
10 jackpot value is at or exceeds the jackpot win value.

19. A medium according to claim 17 or claim 18 wherein instructions to a jackpot controller are to be, either continuously or periodically during the jackpot game, randomly determining a new threshold value between the jackpot win value and the upper jackpot value, and cause the new threshold value to be communicated to players of
15 gaming machines.

20. A medium according to any one of claims 17 to 19 wherein the threshold value, or new threshold value, does not affect the chance of winning the jackpot game.

21. A medium according to any one of claims 17 to 20 wherein the medium may include a previously determined lower jackpot value and a previously determined upper
20 jackpot value that are readable by the jackpot controller.

22. A medium according to any one of claims 17 to 21 wherein the medium includes instructions to the jackpot controller to be operable for one jackpot game or two or more simultaneous jackpot games, each jackpot game having its own lower jackpot value, upper
jackpot value, jackpot win value and threshold value.

23. A medium according to any one of claims 17 to 22 wherein the computer
25 readable medium is one or more of RAM, EPROM, EEPROM or other non-volatile memory devices.

24. A gaming machine for use in a gaming network that allows a gamer to participate in a first game of chance associated with the machine and a second game of chance
30 associated with the network, the second game including a jackpot prize that progressively increases from a lower value toward an upper value and which is awarded when the prize reaches a randomly predetermined jackpot win value that lies between the upper and lower value, the machine including:

an input device for allowing the gamer to provide an input signal to actuate the machine;

a local controller being responsive to the input signal for initiating the first game of chance and for communicating with a network controller to both initiate the second
5 game of chance and to obtain a threshold value that falls between the lower value or upper value and the first jackpot win value;

a local display being responsive to the local controller for allowing the gamer to view the first game of chance and the threshold value.

25. A gaming machine according to claim 24 wherein the local controller also obtains
10 from the network controller the upper value and the local display allows the gamer to view the upper value.

26. A gaming machine according to claim 24 or claim 25 includes a housing for supporting the input device, the local controller and the local display.

27. A gaming machine according to any one of claims 24 to 26 wherein the local
15 display includes a first display for allowing the gamer to view the first game of chance and a second display, spaced apart from the first display, for allowing the gamer to view the threshold value.

28. A gaming machine according to claim 24 or claim 25 wherein the network controller includes a network display that allows the gamer to view the upper value.

20 29. A gaming machine according to any one of claims 24, 25 or 28 wherein the network display is prominently positioned in a line of sight from the machine.

30. A gaming machine according to any one of claims 24 to 26 wherein the local controller obtains the upper value from the network controller and the local display includes the network display.

25 31. A gaming machine according to any one of claims 24 to 27 or claim 30 wherein the local display is a single display device that incorporates two or more of the first display, the second display and the network display.

32. A gaming machine according to any one of claims 24 to 27 or claim 30 and claim 31 wherein the second display is an LED screen mounted to the housing.

30 33. A gaming machine according to any one of claims 24, 25, 28 or 30 wherein the network controller obtains a second threshold value that falls between the jackpot win value and the upper jackpot value and the local controller allows the gamer to view the second threshold value.

34. A gaming machine according to any one of claims 24, 25, 28, 30 or 33 wherein the second threshold value is randomly determined.
35. A gaming machine according to any one of claims 24, 25, 28, 30 or 33 wherein the network controller is responsive the jackpot being awarded for providing an audible and/or visual indication of the machine that triggered the award.
36. A gaming machine according to any one of claims 24 to 28 or claim 30 and claim 33 wherein the gamer operating the machine that has triggered the award of the jackpot is provided with an immediate sensory indication.
37. A gaming machine according to any one of claims 24 to 28 or claim 30, 33, 35 or claim 36 wherein the indication is provided by one or more of: a siren, one or more flashing lights; a display that is prominent in the establishment in which the gaming machine is contained; a visual message that is provided on the local display.
38. A jackpot game method including:
determining, or selecting a previously determined, lower jackpot value;
determining, or selecting a previously determined, upper jackpot value;
randomly determining a jackpot win value between the lower jackpot value and the upper jackpot value;
randomly determining a threshold value between the jackpot win value and the lower jackpot value; and
communicating the threshold value to a player of a gaming machine.
39. A method according to claim 38 including updating the variable jackpot value in response to plays of the gaming machine, a jackpot game being won when the variable jackpot value is at or above the jackpot win value.
40. A method according to claim 38 or claim 39 wherein said jackpot win value is determined at the beginning of the jackpot game and remains fixed for the entire game.
41. A method according to any one of claims 38 to 40 wherein said method includes, either continuously or periodically during the jackpot game, randomly determining a new threshold value between the jackpot win value and the lower jackpot value, and communicating the new second jackpot value to players of gaming machines.
42. A method according to claim 38 to 41 wherein said threshold value, or new second jackpot value, does not affect the chance of winning the jackpot game.
43. A method according to any one of claims 38 to 42 wherein said lower jackpot value and upper jackpot value are determined before the jackpot game commences.

44. A jackpot game system including:
a jackpot controller for communicating with one or more gaming machines;
at least one jackpot display in communication with the jackpot controller and
viewable by players of the or each of the gaming machines; and
5 wherein the jackpot controller:
determines, or has a previously determined, lower jackpot value;
determines, or has a previously determined, upper jackpot value;
randomly determines a jackpot win value between the lower jackpot value and the
upper jackpot value;
10 randomly determines a threshold value between the jackpot win value and the
lower jackpot value; and
causes the threshold value to be displayed on the at least one jackpot display.
45. A system according to claim 44 wherein said jackpot controller is responsive to
game plays on the gaming machines to update a variable jackpot value, the jackpot
15 controller determining that a jackpot game has been won when the variable jackpot value
is at or above the jackpot win value.
46. A system according to claim 44 or claim 45 wherein said jackpot win value is
determined at the beginning of the jackpot game and remains fixed for the entire game.
47. A system according to any one of claims 44 to 46 wherein said jackpot win value is
20 determined at the beginning of the jackpot game and remains fixed for the duration of the
game.
48. A system according to claim 44 or claim 45 wherein said jackpot controller, either
continuously or periodically during the jackpot game, randomly determines a new
threshold value between the jackpot win value and the lower jackpot value, and causes the
25 new threshold value to be displayed on the at least one jackpot display.
49. A system according to claim 44, 45 or claim 48 wherein said threshold value, or
new threshold value, does not affect the chance of winning the jackpot game.
50. A system according claim 44, 45 or claim 48 wherein said lower jackpot value and
upper jackpot value are determined before the jackpot game commences.
- 30 51. A system according to any one of claims 44, 45, 48 or 50 wherein said jackpot
controller is operable for one jackpot game or for two or more simultaneous jackpot
games, each jackpot game having its own lower jackpot value, upper jackpot value,

jackpot win value and threshold value, there being at least one jackpot display for each jackpot game.

52. A computer readable medium including instructions to a jackpot controller to:
determine, or read a previously determined, lower jackpot value,
5 determine, or read a previously determined, upper jackpot value,
randomly determine a jackpot win value between the lower jackpot value and the
upper jackpot value,
randomly determine a threshold value between the jackpot win value and the
lower jackpot value, and
10 cause the threshold value to be communicated to a player of a gaming machine.
53. A medium according to claim 52 wherein said instructions to the jackpot
controller to be responsive to input from one or more gaming machines, said response
including updating a variable jackpot value in response to plays on the gaming machines,
and determining that a jackpot game has been won when the variable jackpot value is at
15 or exceeds the jackpot win value.
54. A medium according to claim 52 or claim 53 wherein said instructions to the
jackpot controller to, either continuously or periodically during the jackpot game, randomly
determine a new threshold value between the jackpot win value and the upper jackpot
value, and cause the new threshold value to be communicated to the one or more players of
20 the gaming machines.
55. A medium according to claims 52 to 54 wherein said threshold value, or new
threshold value, does not affect the chance of winning the jackpot game.
56. A medium according to any one of claims 52 to 55 having a previously determined
lower jackpot value and a previously determined upper jackpot value that can be read by
25 the jackpot controller.
57. A medium according to any one of claims 52 to 56 wherein said instructions to the
jackpot controller to be operable for one jackpot game or for two or more simultaneous
jackpot games, each jackpot game having its own lower jackpot value, upper jackpot value,
jackpot win value and threshold value.
- 30 58. A medium according to any one of claims 52 to 57 is one or more of RAM,
EPROM, EEPROM or other non-volatile memory devices.
59. A gaming machine for use in a gaming network that allows a gamer to participate
in a first game of chance associated with the machine and a second game of chance

associated with the network, the second game including a jackpot prize that progressively increases from a lower value toward an upper value and which is awarded when the prize reaches a randomly predetermined jackpot win value that lies between the upper and lower value, the machine including:

5 an input device for allowing the gamer to provide an input signal to actuate the machine;

 a local controller being responsive to the input signal for initiating the first game of chance and for communicating with a network controller to both initiate the second game of chance and to obtain a threshold value that falls between the upper value and the jackpot
10 win value;

 a local display being responsive to the local controller for allowing the gamer to view the first game of chance and the threshold value.

60. A gaming machine according to claim 59 wherein said local controller also obtains from the network controller the upper value and the local display allows the
15 gamer to view the upper value. More preferably, the machine includes a housing for supporting the input device, the local controller and the local display. Even more preferably, the local display includes a first display for allowing the gamer to view the first game of chance and a second display, spaced apart from the first display, for allowing the gamer to view the threshold value.

20 61. A gaming machine according to claim 59 or claim 60 wherein said network controller includes a network display that allows the gamer to view the upper value.

62. A gaming machine according to any one of claims 59 to 61 wherein said network display is prominently positioned in a line of sight from the machine.

25 63. A gaming machine according to claim 59 or claim 60 wherein said local controller obtains the upper value from the network controller and the local display includes the network display.

64. A gaming machine according to any one of claims 59, 60 or 63 wherein said local display is a single display device that incorporates two or more of the first display, the second display and the network display.

30 65. A gaming machine according to any one of claims 59, 60, 63 or claim 64 wherein said second display is an LED screen mounted to the housing.

66. A gaming machine according to any one of claims 59, 60, or claims 63 to 65 wherein said network controller obtains a second threshold value that falls between the

jackpot win value and the lower jackpot value and the local controller allows the gamer to view the second threshold value.

67. A gaming machine according to any one of claims 59, 60, or claims 63 to 66 wherein said second threshold value is randomly determined.

5 68. A gaming machine according to any one of claims 59, 60, or claims 63 to 67 wherein the network controller is responsive to the jackpot being awarded for providing an audible and/or visual indication of the machine that triggered the award.

69. A gaming machine according to any one of claims 59 to 61 or claims 63 to 66 wherein said gamer operating the machine that has triggered the award of the jackpot is
10 provided with an immediate sensory indication that this has occurred.

70. A gaming machine according to any one of claims 59 to 61 or claims 63 to 69 wherein said indication is provided by one or more of: a siren, one or more flashing lights; a display that is prominent in the establishment in which the gaming machine is contained; a visual message that is provided on the local display.

15 71. A jackpot game method substantially as herein described with reference to the accompanying drawings.

72. A jackpot game system substantially as herein described with reference to the accompanying drawings.

73. A computer readable medium substantially as herein described with reference to
20 the accompanying drawings.

74. A gaming machine substantially as herein described with reference to the accompanying drawings.

DATED this 18th Day of April 2002

DAUMA PTY LTD

25

Attorney: JOHN B. REDFERN
Fellow Institute of Patent and Trade Mark Attorneys of Australia
of Baldwin Shelston Waters

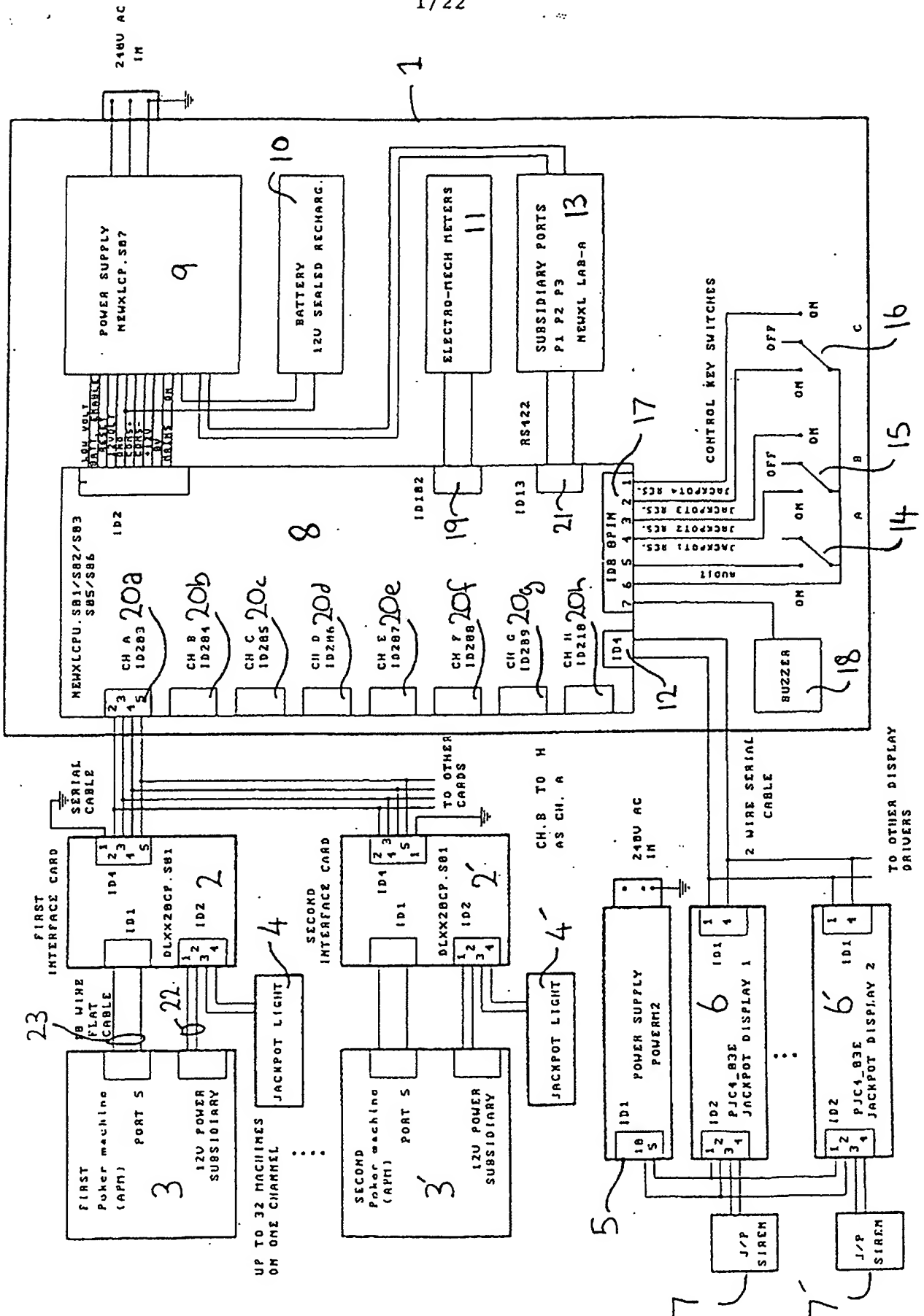


FIGURE 1

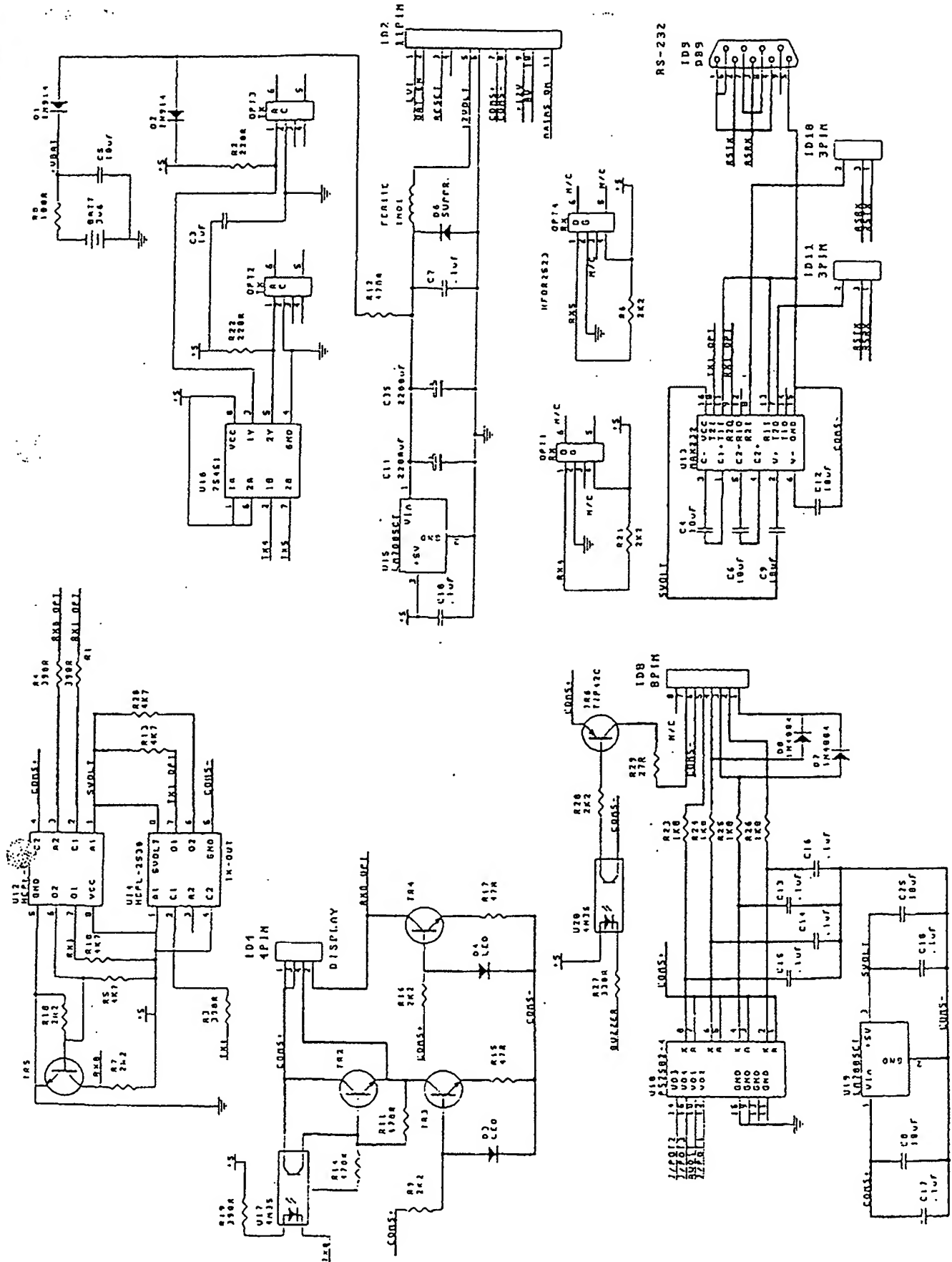


FIGURE 2

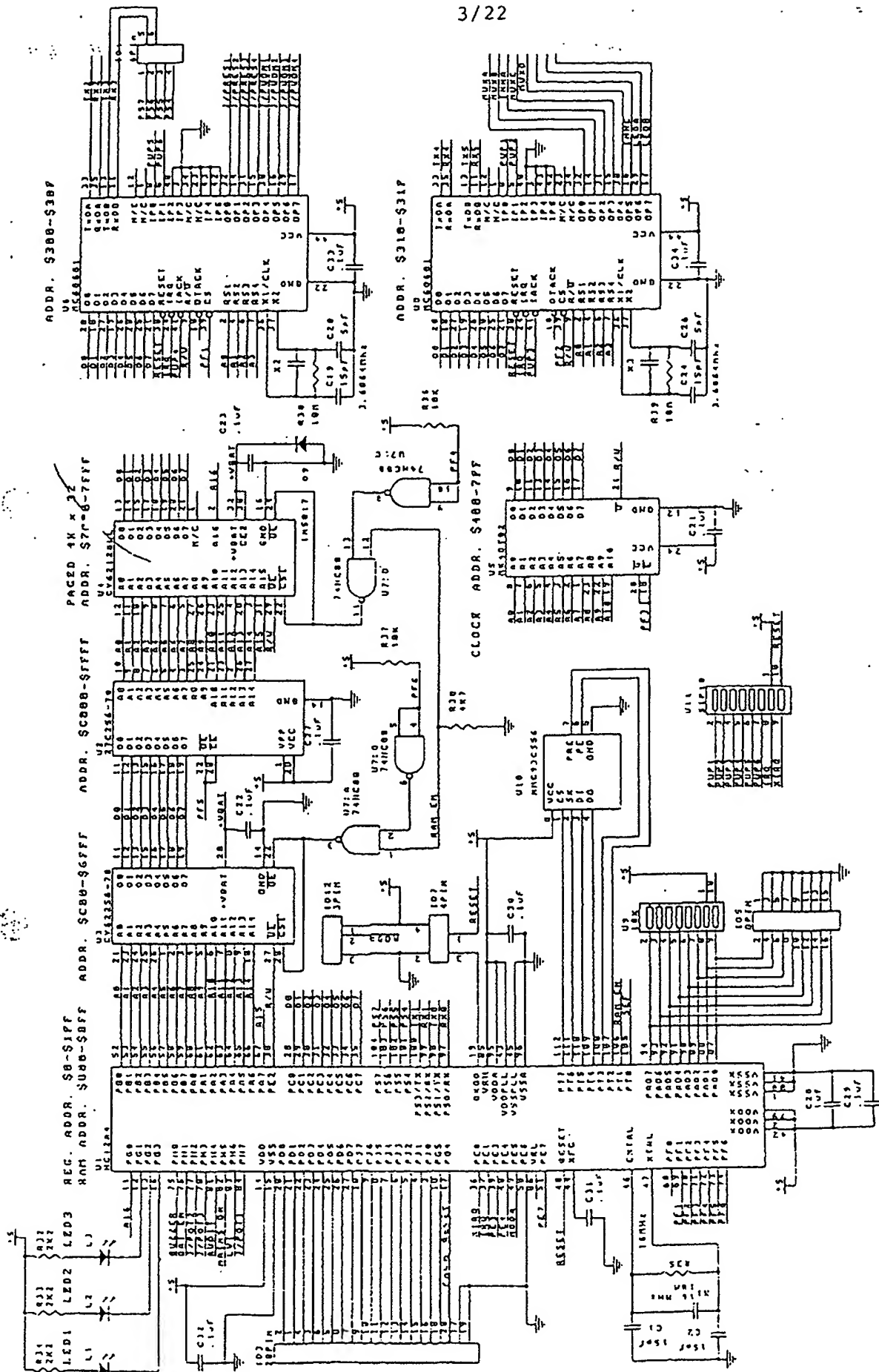


FIGURE 3

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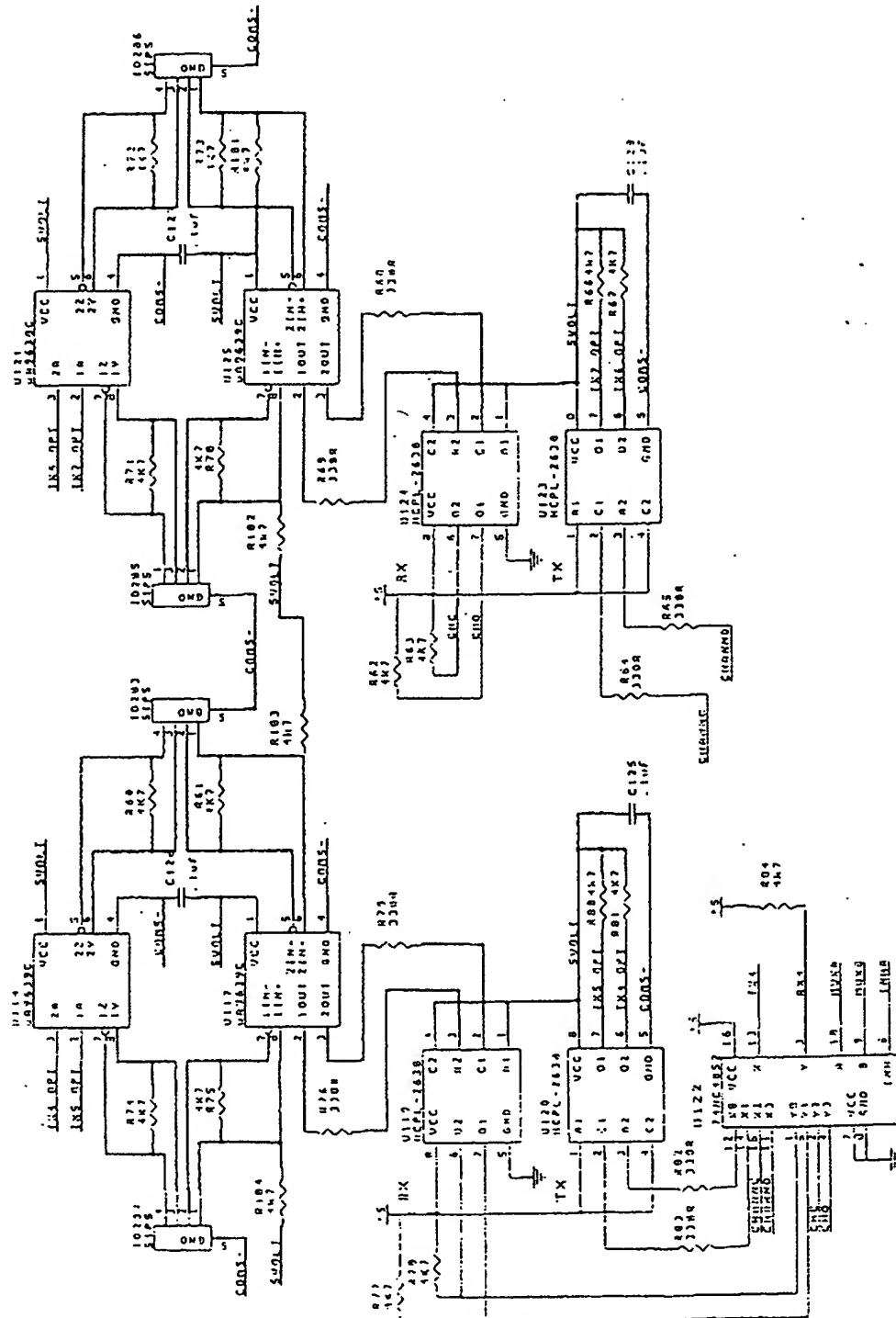


FIGURE 5

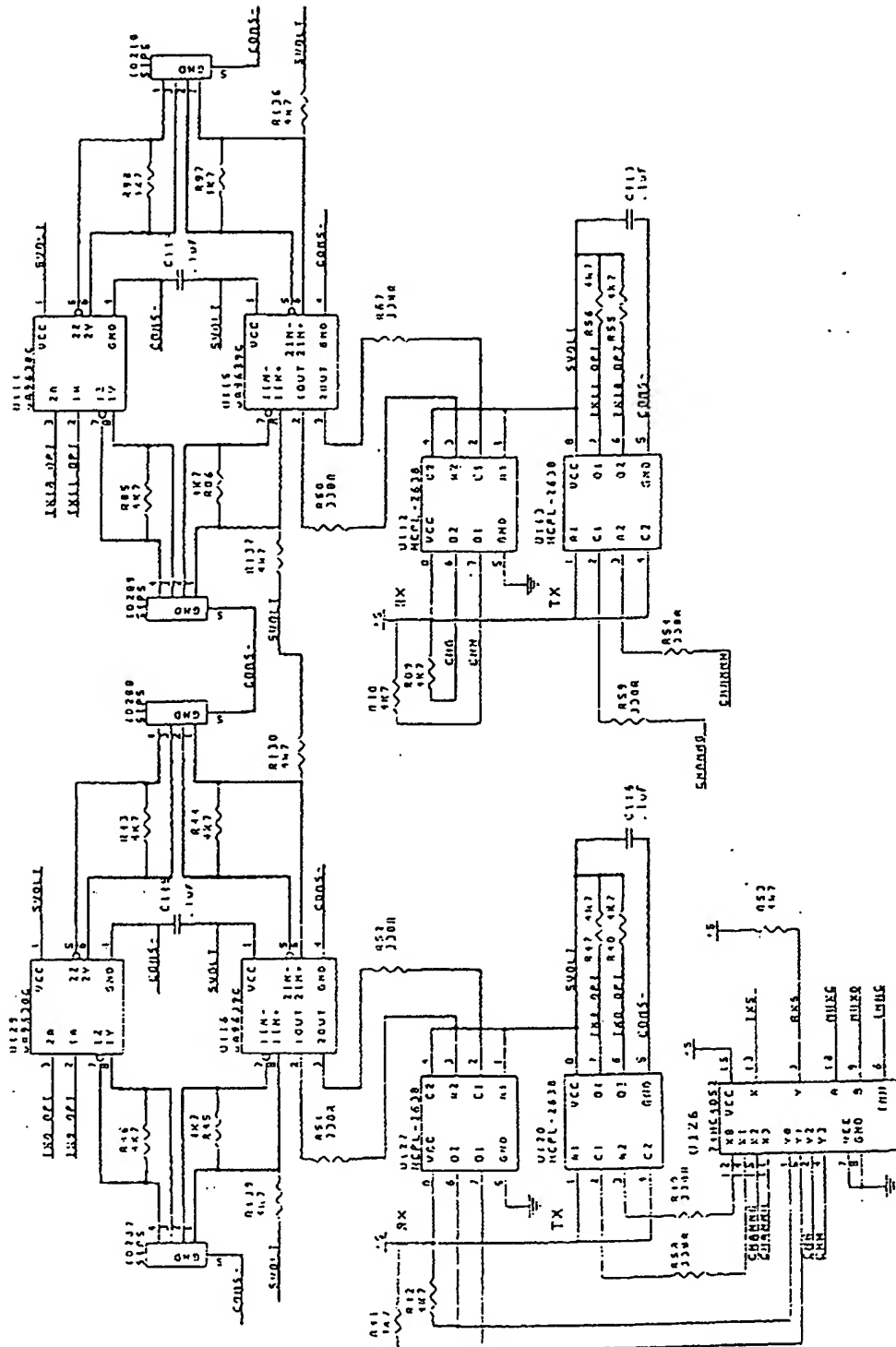


FIGURE 6

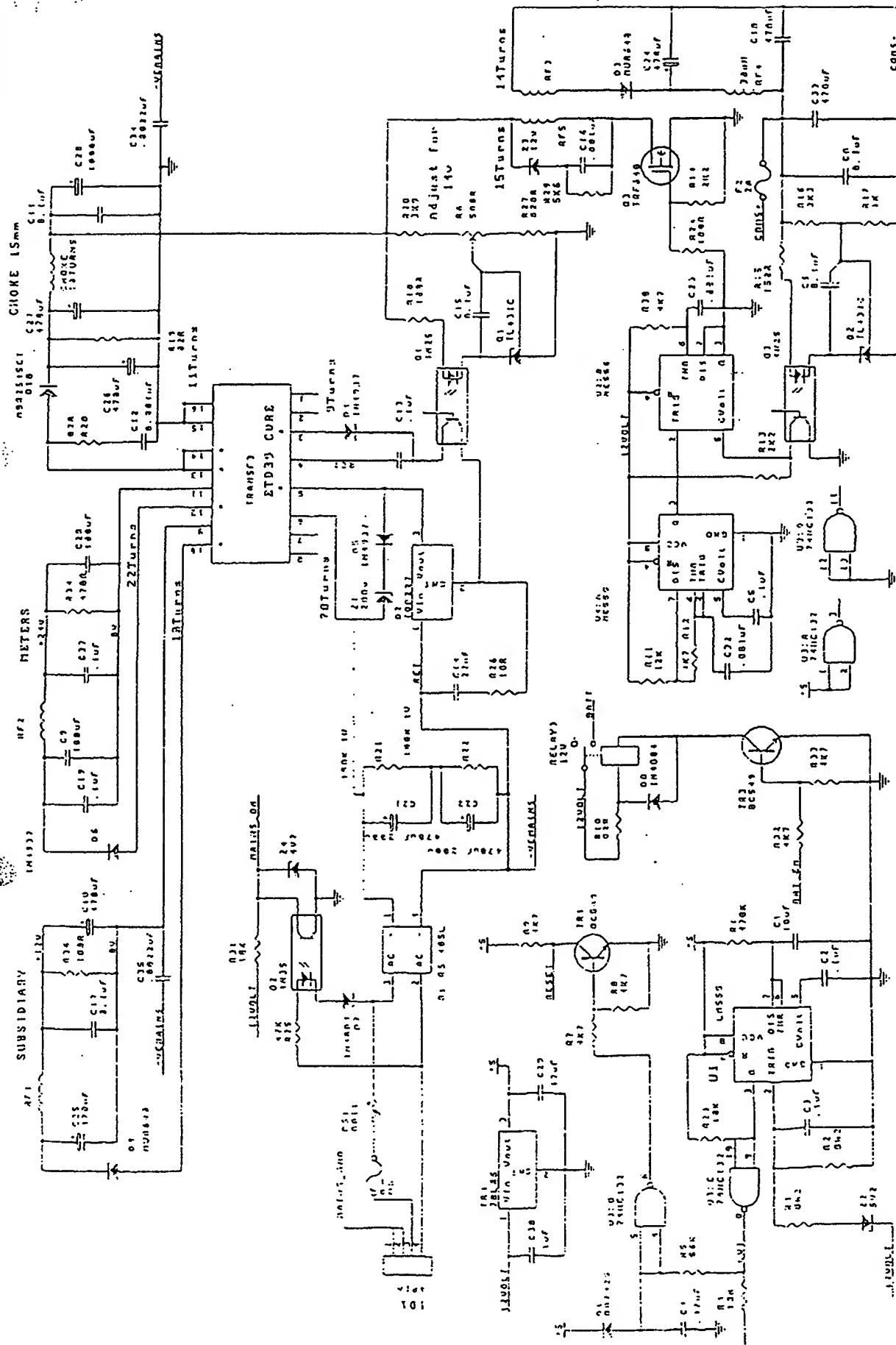


FIGURE 7

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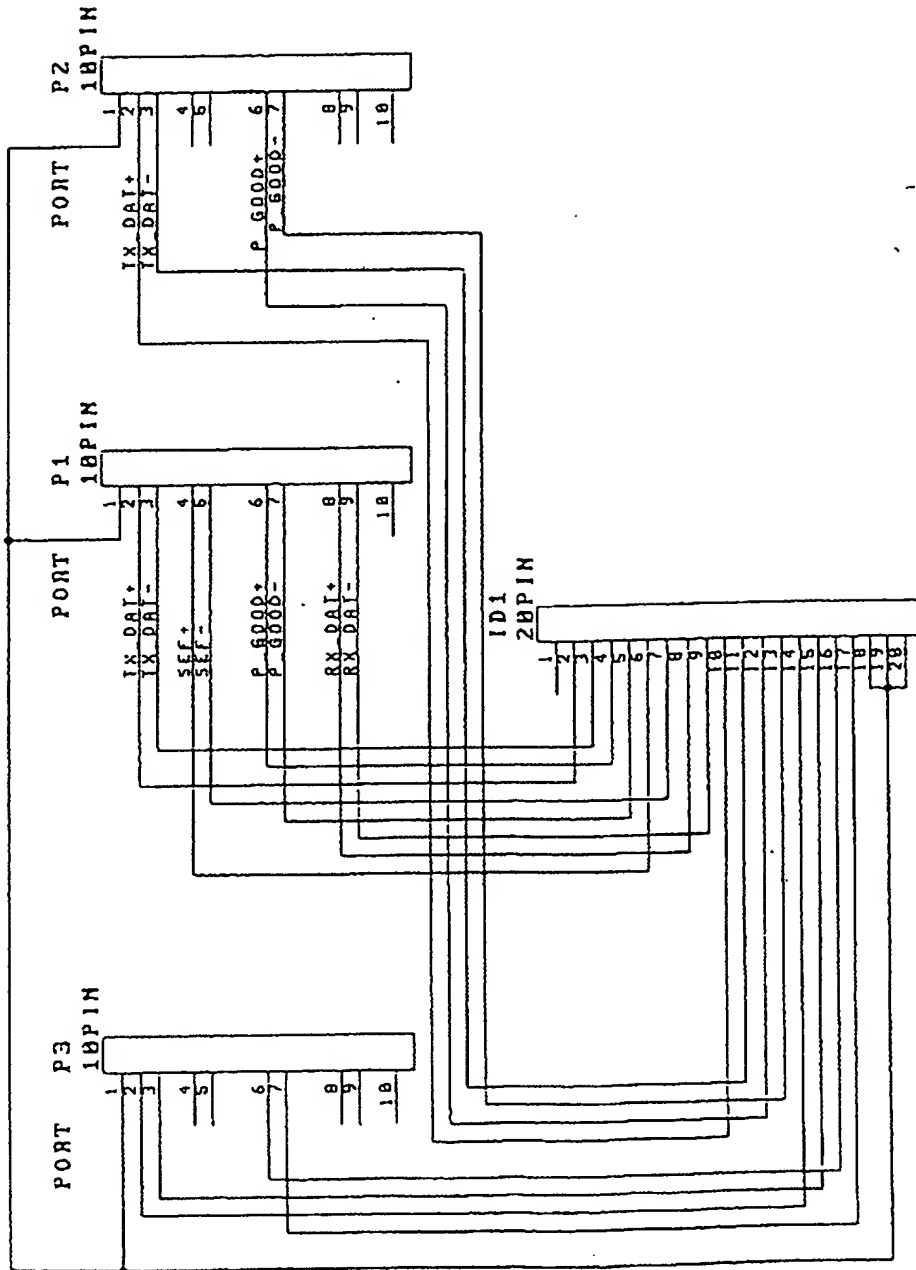


FIGURE 8

Operating Mode	Switch A	Switch B	Switch C	System State
Cold Reset	Audit	OFF	OFF	Power / UP + DIP Switch
Warm Reset	Audit	Forward	Select	Power / Up, Memory Error
Setup APMs	Audit	Backward	Select	Power / Up, No Error
Setup Clock	Audit	OFF	Clock	Power / Up, No Error
- Next Field	OFF	OFF	OFF → Select	Clock Setup
- Change Field +	OFF	OFF → Forward	OFF	Clock Setup
- Change Field --	OFF	OFF → Backward	OFF	Clock Setup
Security Reset	Audit	Forward	Select	Security Error
Audit Mode	Audit	OFF	OFF	All Modes Except Power UP
- Next Directory	OFF → Audit	OFF	OFF	Audit Mode
- Next Entry	Audit	Forward → OFF	OFF	Audit Mode
- Previous Entry	Audit	Backward → OFF	OFF	Audit Mode
- Test APM	Audit	OFF	Select	Audit Mode
Jackpot 1 Reset	OFF	JP1 Reset	OFF	Normal Mode
Jackpot 2 Reset	OFF	JP2 Reset	OFF	Normal Mode
Jackpot 3 Reset	OFF	OFF	JP3 Reset	Normal Mode
Jackpot 4 Reset	OFF	OFF	JP4 Reset	Normal Mode

→ Indicates the switch is toggled from one position to the next.

FIGURE 9

Byte Number	Format	Description
1	xxxx0xx0	- Data Formatting Character - Bits 7 to 4 - Formatting Change for Data - Bits 2 and 1 - Positioning of Data
2 ... 13	—	Data - 12 ASCII Bytes. (\$20 to \$7F inclusive)
14	0xxx0010	Control Byte - Bits 6 to 4 - Destination Level of Data - Bit 1 - Jackpot Signal
15 16	—	- Checksum Least Significant Byte (\$0D Masked Out) - Checksum Most Significant Byte (\$0D Masked Out)
17	0D	Packet Terminating Character

FIGURE 10

Data Formatting Byte	Description
0000xxxx	Remove white space at beginning and end.
0001xxxx	Currency value. Insert decimal point and "\$" sign.
0010xxxx	Percentage value. Insert decimal point and "%" sign.
0101xxxx	Whole Number. Remove Leading Zeros.
0110xxxx	GMID number. Remove leading zeros until beginning of GMID number.
0111xxxx	GMID number + Level number.
1000xxxx	Time 0000000000 ==> 00/00/00 00:00
1001xxxx	Reveal Value. Insert Decimal Point and "\$" sign.
xxxxx00x	Normal orientation of message.
xxxxx01x	Message appears on upper line of display.
xxxxx10x	Message appears on lower line of display.

- All other combinations of bits are considered as 0000xxxx and xxxxx00x.

FIGURE 11

Byte Number	Format	Description
1	FF	Start of Transmission Character (STX) is a unique code and does not appear anywhere else in the packet.
2	01 - FD	Station Identification Number (SID) is a unique number given for each NewXS connected to the NewXL, it is also used as a house number.
3	00 - 99	Packet Identification Number (PID) is incremented only if the packet has been modified compared to the previously transmitted packet for that particular NewXS. This value is a BCD code that is wrapped around to 0 when 99. It is incremented independently of other transmission packets for other NewXS. The PID is initialized to zero whenever a reset or kick start of a NewXS occurs.
4	00 - 7F	Command Request (CMD) instructs a particular NewXS to respond with a certain type of information packet or carry out a select task.
5	00	Spare.
...	
8	00	Spare.
9	00 - FD	Checksum least significant byte.
10	00 - FD	Checksum most significant byte.
11	FE	End of Transmission Character (ETX) is a unique code and does not appear anywhere else in the packet.

FIGURE 12

Byte Number	Format	Description
1	FF	Start of Transmission Character (STX) is a unique code and does not appear anywhere else in the packet.
2	01 - FD	Station Identification Number (SID) is a unique number received from the NewXS that matches the polled SID. The SID is also used as a house number.
3	00 - 99	Packet Identification Number (PID) is incremented only if the packet received from the NewXL is incremented by one from the last packet received. This value is a BCD code that is wrapped around to 0 when 99. It is incremented independently of other reception packets for other NewXS. The PID is initialized to zero whenever there is a reset request from the NewXL or the NewXS is in power condition.
4	00 - 7F	Command Request (CMD) informs the NewXL what action was carried out and the type of data this packet contains.
5	00 - 7F	Sub Status byte contains information about the status of the NewXS.
6	00 - FD	Sub Signature Key.
7	00 - FD	Sub Signature Key is a checksum of the executable code currently running in the NewXS. This checksum is calculated on every power up of the NewXS and is sent in every packet to the NewXL.
8	0 - FE	Bytes 6 to 126 of a Standard Data Block (SDB).
... .. 128		
129	00 - FD	Checksum least significant byte.
130	00 - FD	Checksum most significant byte.
131	FE	End of Transmission Character (ETX) is a unique code and does not appear anywhere else in the packet.

FIGURE 13

Byte Number	Format	Description
1	FF	Start of Transmission Character (STX) is a unique code and does not appear anywhere else in the packet.
2	01 - FD	Station Identification Number (SID) is a unique number received from the NewXS that matches the polled SID. The SID is also used as a house number.
3	00 - 99	Packet Identification Number (PID) is incremented only if the packet received from the NewXL is incremented by one from the last packet received. This value is a BCD code that is wrapped around to 0 when 99. It is incremented independently of other reception packets for other NewXS. The PID is initialized to zero whenever there is a reset request from the NewXL or the NewXS is in power condition.
4	00 - 7F	Command Request (CMD) informs the NewXL what action was carried out and the type of data this packet contains.
5	00 - 7F	Sub Status byte contains information about the status of the NewXS.
6	00 - FD	Sub Signature Key.
7	00 - FD	Sub Signature Key is a checksum of the executable code currently running in the NewXS. This checksum is calculated on every power up of the NewXS and is sent in every packet to the NewXL.
8	00 - 99	GMID Least Significant Digit (LSD) and LSD+1.
... ..		
10	00 - 99	GMID LSD+4 and Most Significant Digit (MSD).
11	0 - 7F	Status Byte 1 (non-lockup).
12	0 - 99	Turnover meter (LSD and LSD+1)
... ..		
16	0 - 99	Turnover meter (LSD+8 and MSD)
17	00 - FD	Checksum least significant byte.
18	00 - FD	Checksum most significant byte.
19	FE	End of Transmission Character (ETX) is a unique code and does not appear anywhere else in the packet.

FIGURE 14

Number		
1	FF	Start of Transmission Character (STX) is a unique code and does not appear anywhere else in the packet.
2	01 - FD	Station Identification Number (SID) is a unique number received from the NewXS that matches the polled SID. The SID is also used as a house number.
3	00 - 99	Packet Identification Number (PID) is incremented only if the packet received from the NewXL is incremented by one from the last packet received. This value is a BCD code that is wrapped around to 0 when 99. It is incremented independently of other reception packets for other NewXS. The PID is initialized to zero whenever there is a reset request from the NewXL or the NewXS is in power condition.
4	00 - 7F	Command Request (CMD) informs the NewXL what action was carried out and the type of data this packet contains.
5	00 - 7F	Sub Status byte contains information about the status of the NewXS.
6	00 - FD 00 - FD	Sub Signature Key.
7		Sub Signature Key is a checksum of the executable code currently running in the NewXS. This checksum is calculated on every power up of the NewXS and is sent in every packet to the NewXL.
8	00 - FD	Checksum least significant byte.
9	00 - FD	Checksum most significant byte.
10	FE	End of Transmission Character (ETX) is a unique code and does not appear anywhere else in the packet.

FIGURE 15

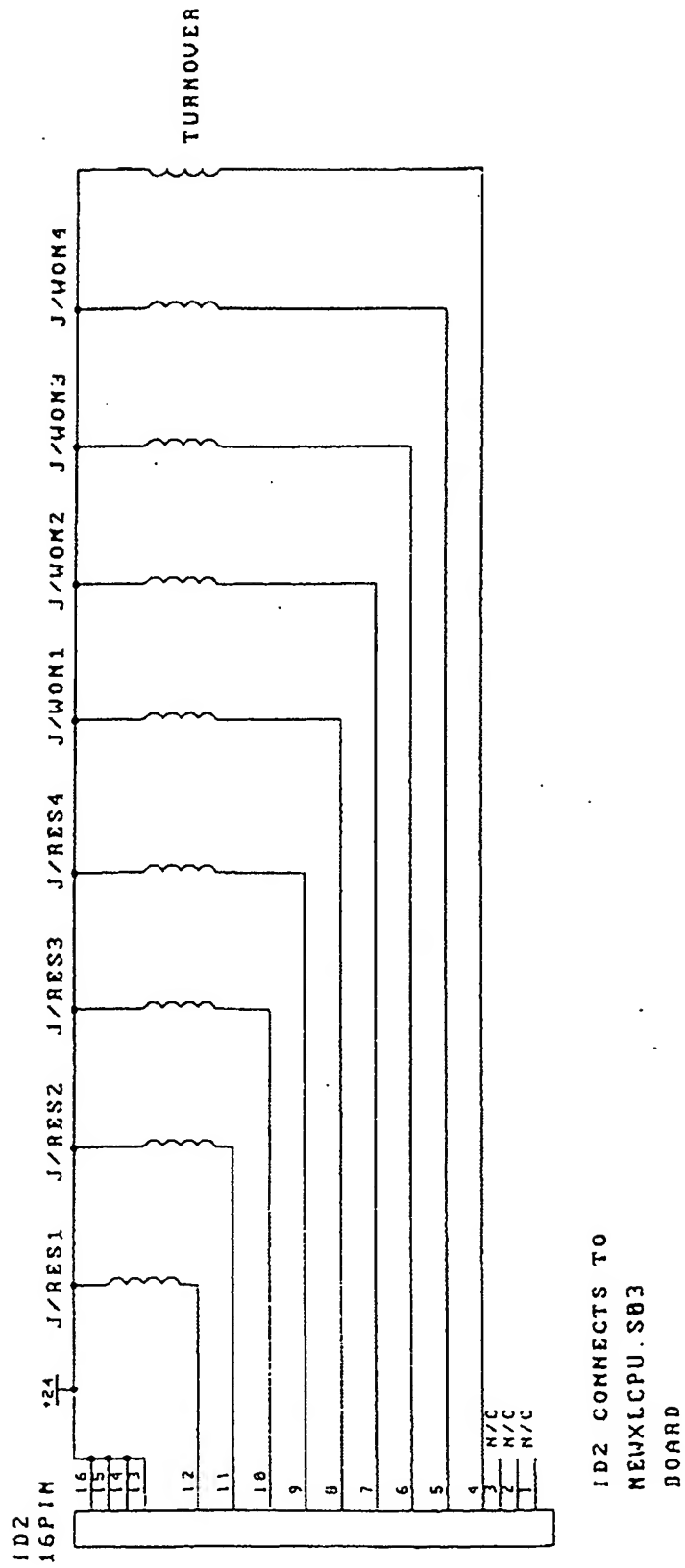


FIGURE 16

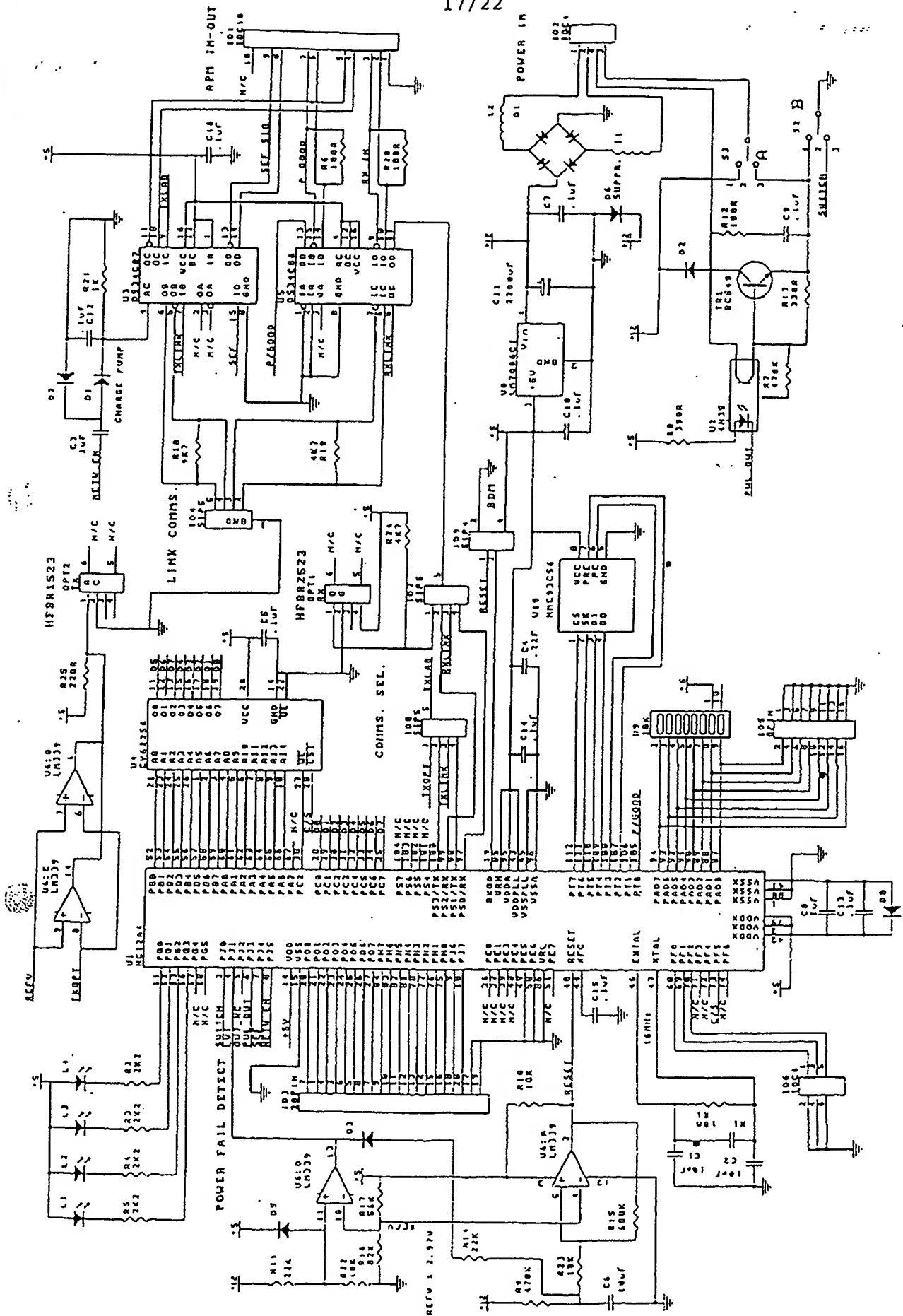


FIGURE 17

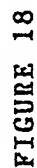


FIGURE 18

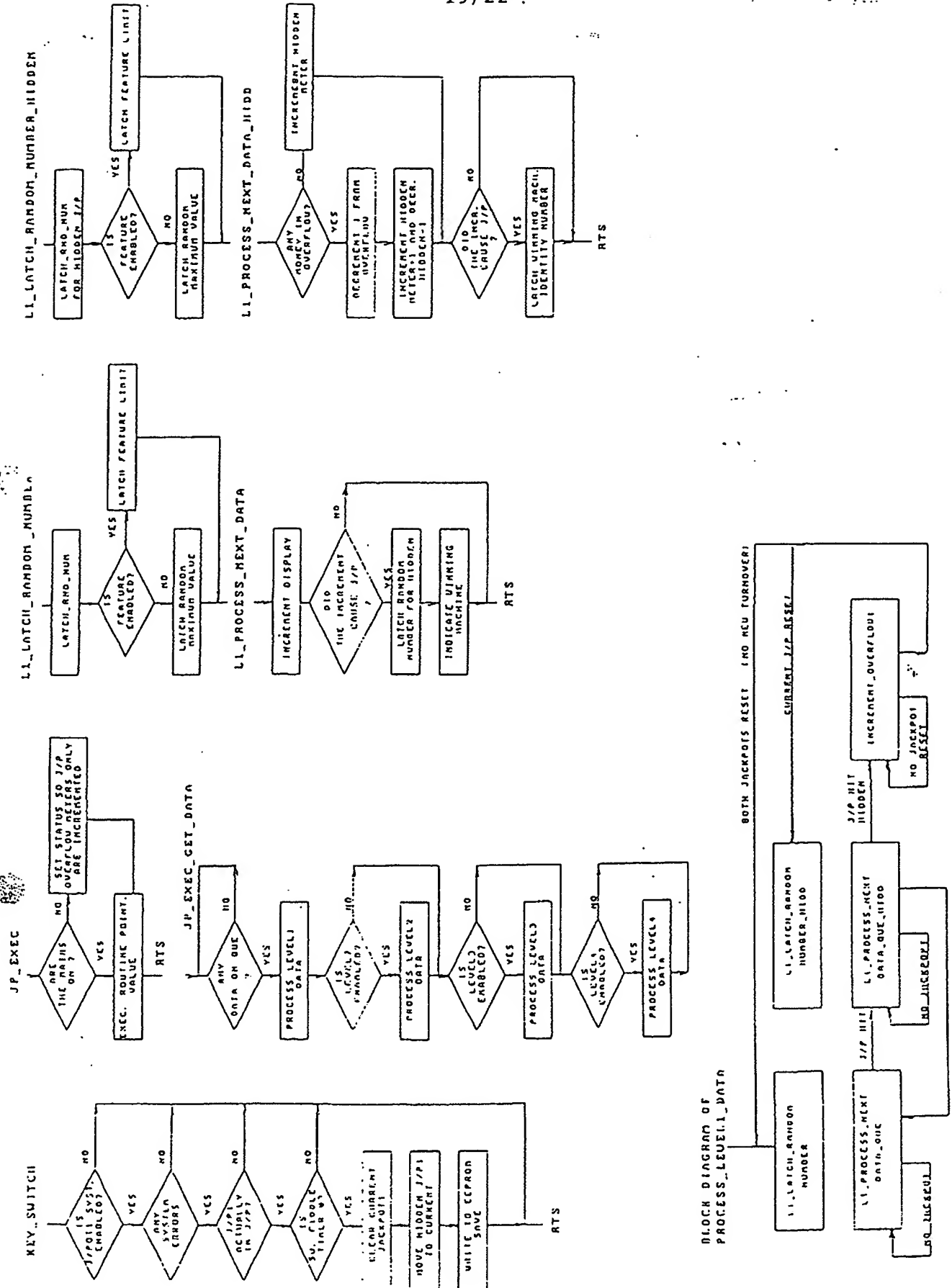


FIGURE 19

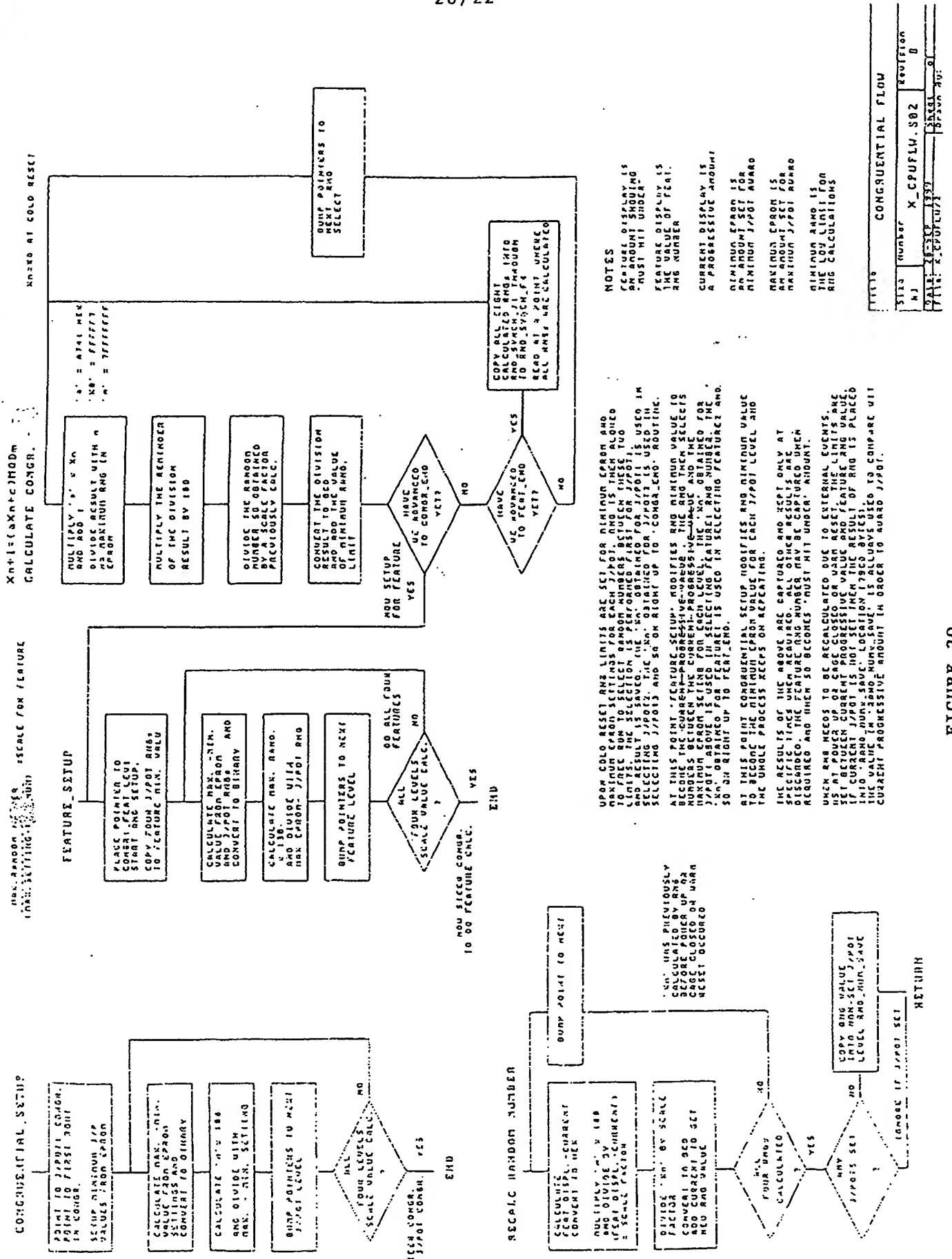


FIGURE 20

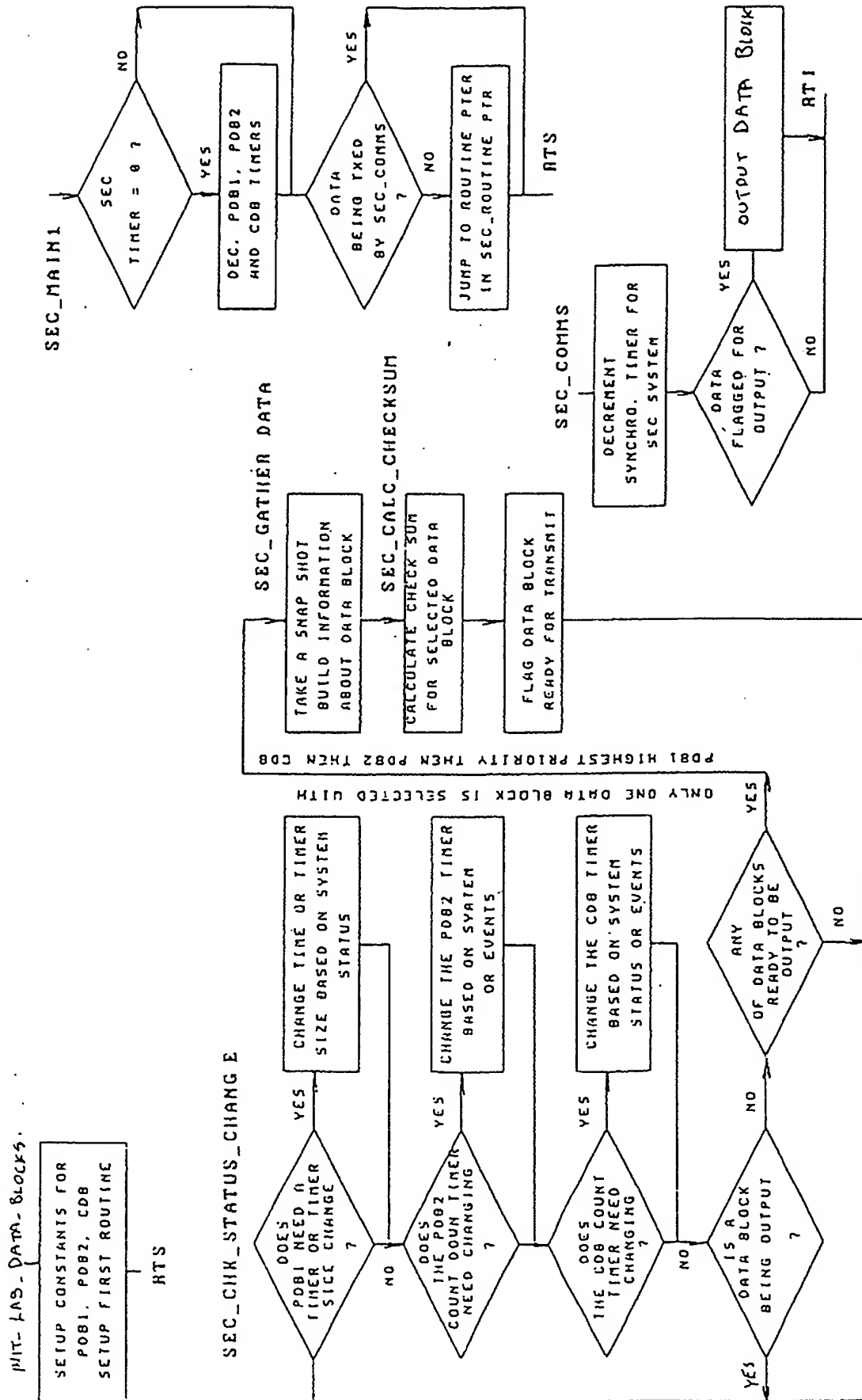


FIGURE 21

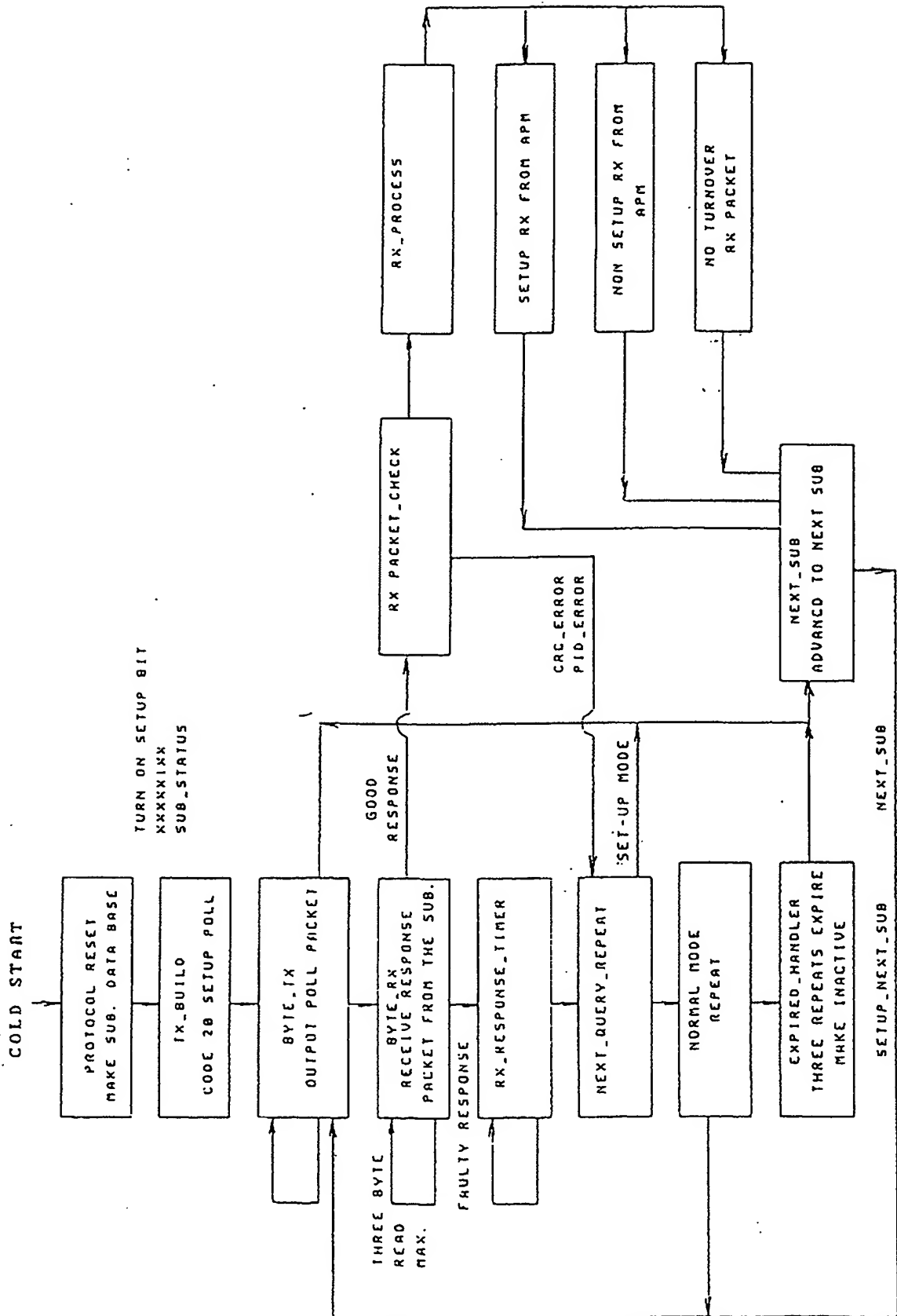


FIGURE 22-

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(19) AUSTRALIAN PATENT OFFICE

(11) Application No. AU 199943453 B1
(10) Patent No. 714299

(54) Title
Prize awarding system

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(56) Related Art
WO 99/03078
WO 97/12338
WO 96/24421

ABSTRACT

Periodic prize draws are conducted by a jackpot controller (13) in a gaming system having one or more electronic gaming devices (10). The probability of each electronic gaming device winning a particular prize draw is dependent upon the amount wagered on that gaming machine during a period preceding that prize draw. The prize may be a progressive jackpot which comprises an initial starting value and a contribution from the amounts wagered on the electronic gaming devices. If an electronic gaming device wins a prize draw, its player may be granted a feature game to determine the actual prize. Jackpots are suspended pending the completion of the feature game. The probability that a gaming device will win the prize draw, or the relative win probabilities of the gaming devices, may be displayed graphically.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method of awarding a prize in a gaming system comprising at least one gaming machine, characterised in that the probability of each gaming machine winning the prize is dependent upon at least some of the amount wagered on that gaming machine during an elapsed period.
2. A method as claimed in claim 1 wherein the probability is related to the total wagered amount recorded during the elapsed period.
3. A method as claimed in claim 1 wherein the probability is related to the maximum amount wagered on a game during the elapsed period.
4. A method as claimed in any preceding claim, wherein the elapsed period is a rolling or sliding period of time.
5. A method as claimed in any preceding claim, including the step of conducting a series of prize draws and, prior to each prize draw, calculating the probability of each gaming machine winning that draw.
6. A method as claimed in claim 5, wherein the elapsed period is a predetermined period preceding each draw, further comprising the steps of recording amounts wagered on each gaming machine and calculating the probability of each gaming machine winning that draw from amount(s) recorded during the predetermined period.
7. A method as claimed in claim 6, wherein the draws are conducted at periodic intervals of time, the period between draws being no greater than the predetermined period.

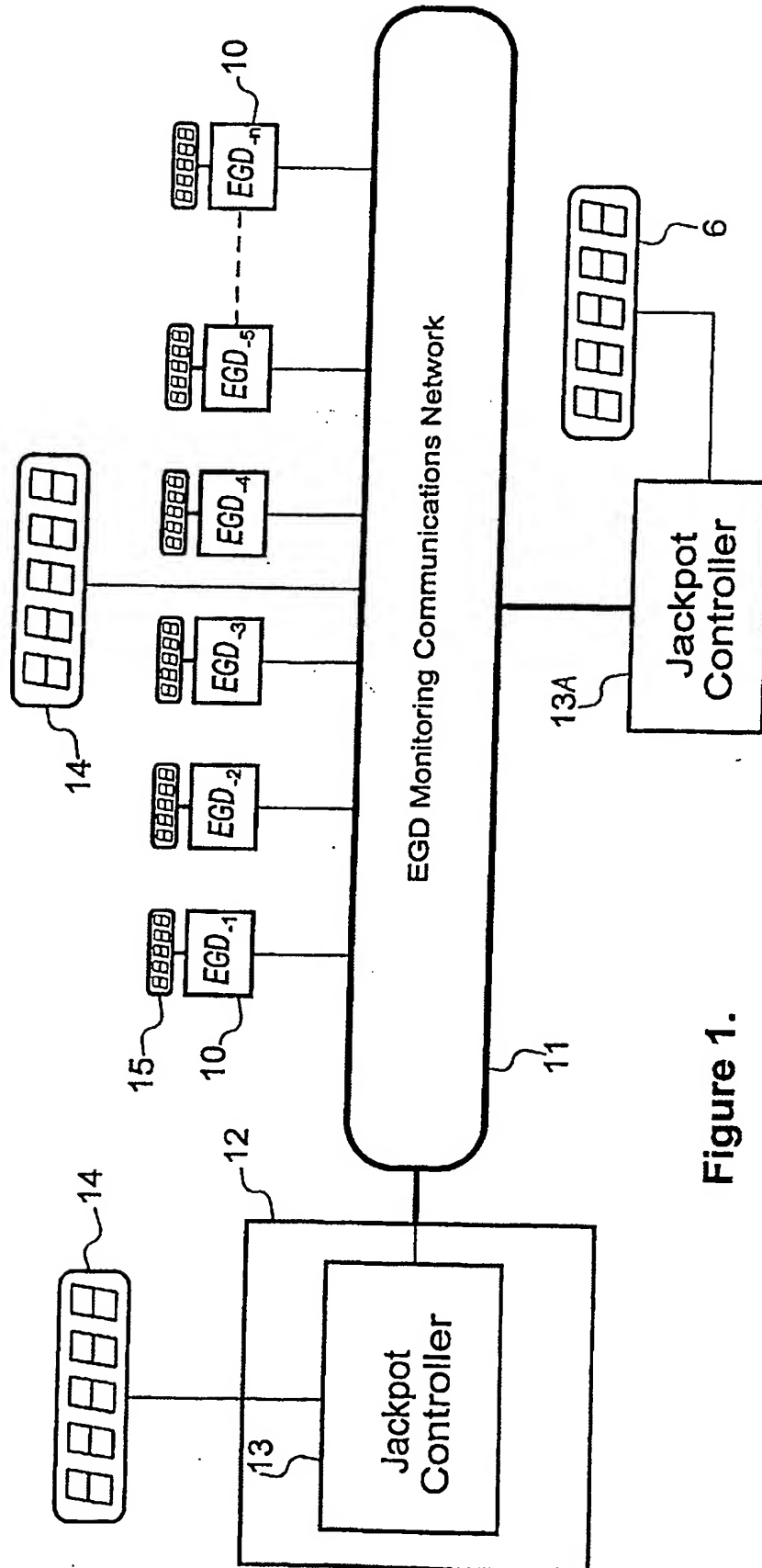


Figure 1.

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